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NOGAP B.6, PHYSICAL AND CHEMICAL DATA COLLECTED IN THE BEAUFORT SEA AND MACKENZIE RIVER DELTA, APRIL-MAY 1991

by

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Institute of Ocean Sciences
Department of Fisheries and Oceans
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Abstract

R.W. Macdonald, R. Pearson, D. Sieberg, F.A. McLaughlin, M.C. O'Brien, D.W. Paton, E.C. Carmack, J.R. Forbes, J. Barwell-Clarke, 1992, NOGAP B.6, Physical and Chemical Data Collected in the Beaufort Sea and Mackenzie River Delta, April - May 1991. *Can. Data Rep. Hydrogr. Ocean Sci.:* **104**, 154 pp

As part of the NOGAP B.6 program (Beaufort Sea Oceanography), with objectives to determine hydrocarbon pathways and primary productivity of the waters overlying the Mackenzie Shelf, we conducted an ice-based spring sampling program in 1991 (April 23-May 11, Institute of Ocean Sciences I.D. #9109). Water properties (physical, chemical and biological) were measured on a number of transects from Herschel Island in the west to Cape Bathurst in the east. Particular emphasis was placed on determining the disposition of the Mackenzie River plume under the ice in the nearshore and its influence on water properties. We report here the physical measurements (CTD data) and chemical measurements (salinity, dissolved oxygen, orthophosphate, nitrate, reactive silicate, chlorophyll *a*).

Key words: Arctic, chlorophyll *a*, coastal zone, nutrients, oceanography, salinity, temperature.

Résumé

R.W. Macdonald, R. Pearson, D. Sieberg, F.A. McLaughlin, M.C. O'Brien, D.W. Paton, E.C. Carmack, J.R. Forbes, J. Barwell-Clarke, 1992, NOGAP B.6, Physical and Chemical Data Collected in the Beaufort Sea and Mackenzie River Delta, April - May 1991. *Can. Data Rep. Hydrogr. Ocean Sci.:* **104**, 154 pp

Dans le cadre du programme NOGAP B.6 (Océanographie de la mer de Beaufort), lequel a pour objectifs de déterminer le cheminement des hydocarbures ainsi que la productivité primaire dans les eaux du plateau Mackenzie, nous avons mené un programme de prélèvements à partir de la glace au cours du printemps 1991 (23 avril au 11 mai, mission #9109, Institut des Sciences de la Mer). Les propriétés physiques, chimiques et biologiques des eaux ont été mesurées sur plusieurs transectes allant de l'Île Herschel, à l'ouest, au Cap Bathurst, à l'est. La disposition du panache de la Mackenzie sous la glace près de la côte et son influence sur les propriétés de l'eau ont été déterminés avec une emphase particulière. Nous rapportons ici les mesures physiques (données CTP) et chimques (salinityé, oxygène dissous, phosphate, nitrate, silicate réactif, et chlorophylle *a*).

Mots-clés: Arctique, chlorophyll *a*, zone côtière, nutriments, océanographie, salinité, température.

Acknowledgements

This work was funded by **Indian and Northern Affairs, Canada**, as part of the *Northern Oil and Gas Action Program.* We thank Frozen Sea group for the loan of equipment enabling us to work from the ice. Jimmy and Jackie Jacobson of Tuktoyaktuk helped us with the snowmobile sampling off Cape Bathurst. We are grateful for the support provided by Polar Continental Shelf Project, and in particular Barry Hough and Claude Brunet at Tuktoyaktuk. We thank the pilots, Ron Sprang and Pierrette Paroz, for getting us to and from the ice safely. Sample handling and preparation was greatly facilitated by having the use of the Winnipeg DFO laboratory at Tuktoyaktuk; we thank G. Lacho for making this space available to us. S. Thomson assisted with advice on style, and with final text-editing of this report. Julie Henderson endured the mind-numbing job of numbering the data tables.

1 INTRODUCTION

The Northern Oil and Gas Action Program has as one of its sub-projects a major inter-disciplinary study of the oceanography of the Canadian Beaufort Sea (NOGAP B.6). In particular, the objectives of NOGAP B.6 are to determine the transport and fate of materials (especially hydrocarbons) over the Beaufort Shelf, and the primary productivity of these coastal waters. Field work, which started in 1986, is continuing; data reports in the NOGAP B.6 series are listed on the inside of the back cover of this report. During the spring of 1991 (Institute of Ocean Sciences I.D. # 9109), our field work focused on the nearshore zone and the disposition of fresh water from the Mackenzie River under landfast ice in late winter. A preliminary study ([*Macdonald and Carmack*; 1991] led us to conclude that this nearshore region and this time of year are critical both to the biology and to physical processes that transport properties including contaminants during winter. Accordingly, we collected CTD data and water samples for chemistry on transects outward from the coast. Additionally, we collected ice cores at many of the stations which were sectioned and analyzed for salinity, $\delta^{18}O$, and nutrients.

We operated our program out of Tuktoyaktuk, Polar Continental Shelf Project (PCSP), and used fixed-wing and rotary-wing support vehicles to carry out the sampling. During the spring of 1991, a particularly large polynya opened up off the Tuktoyaktuk Peninsula (Fig. 1); to take a station in the open water we used a Zodiac workboat. Samples and data were collected from the mouth of Liverpool Bay using a Snowmobile/Sled system and an overnight camp. Data collected for other aspects of the program (listed below) will be made available elsewhere. The primary logistic goals accomplished for this work were as follows (data summarized in this data report are outlined in **bold** font):

- **Collect water column data in late winter for physical, chemical and biological properties on transects extending outward from shore, covering especially region invaded by the Mackenzie River plume under the ice.**
- **Collect CTD data in a transect along the axis of Liverpool Bay.**
- Collect ice cores at most of the water sampling stations and at two Mackenzie River stations for which ice-thickness records were being collected.
- Map the water properties in the polynya off the Tuktoyaktuk Peninsula using a Compact Airborne Spectrographic Imager (CASI) mounted in a fixed-wing aircraft (*Borstad and Associates*, contract FP 941-1-7544; NOAA AVHRR imagery was also obtained).
- Deploy a sequential sediment trap mooring at the shelf edge to measure currents and sedimentation throughout summer (April - September, 1991).
- Deploy two Remote Expendable Velocity Stations (REVS) in the landfast zone off Tuktoyaktuk to determine under-ice currents in the estuary. Data from these moorings were telemetered *via* ARGOS.
- Deploy an Acoustic Doppler Current Profiler (ADCP) at one of the REVS to profile the under-ice currents.
- Collect data on the location and strength of freshwater flow entering Kugmallit Bay from the Mackenzie River East Channel (these measurments were made with the assistance of *M. Alford*).

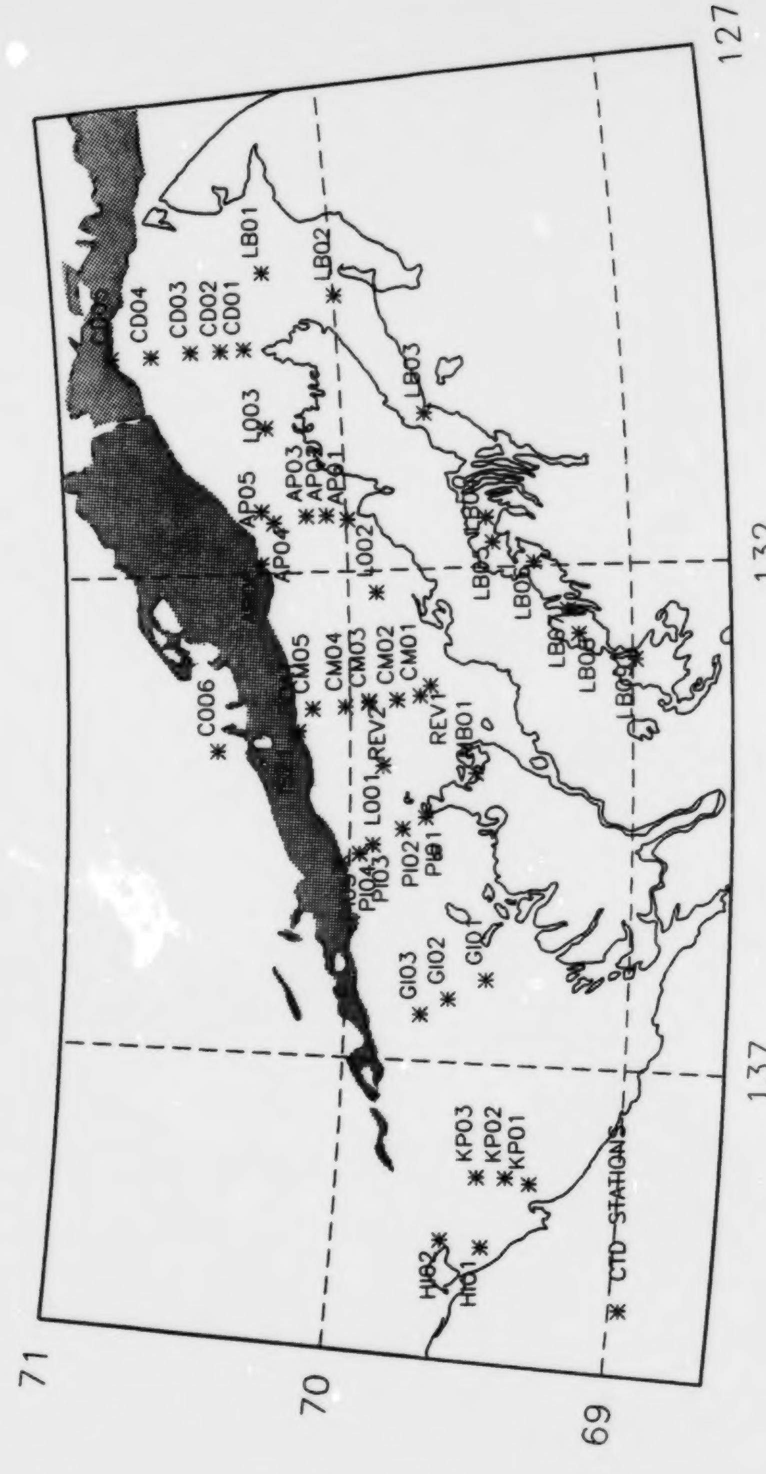


Figure 1: Station locations for CTD data – approximate position of open water is shown.

1.1 Stations

1.1.1 Station Nomenclature

The stations have been given a two-part designation. The alphabetic before the hyphen refers generally to a coastal feature relevant to the location of the transect (described below) and, after the hyphen, stations are generally numbered sequentially outward from the coast.

HI Herschel Island

KP Kay Point

GI Garry Island

PI Pullen Island

CM C section off Tuktoyaktuk, Middle part

CI C section off Tuktoyaktuk, Inner part

C C section off Tuktoyaktuk, Outer part

AP Atkinson Point

CD Cape Dalhousie

L, SL Along-coast, stations on the 10 m isobath

CB Cape Bathurst

LB Liverpool Bay

REV Recording Expendable Velocimeter Station, located on the C transect.

MB Mason Bay

ISZ, TOW, BOAT Stations in the open lead

CAN, KIT, WSTC, West C, flgp, tkak Mackenzie River, Kugmallit Bay

CASI Calibration stations in the open lead

1.1.2 Station Locations

All stations were navigated using the aircraft GPS, or for Stations taken by Snowmobile a Magellan hand held GPS was used. All GPS units used C/A codes for positioning. Over the duration of the field trip, GPS "selective availability" was turned off and therefore the positions are expected to be within 50 m of the true position. Precision of the GPS system was repeatably demonstrated by the ability to navigate back to single, unmarked auger holes in the land fast zone.

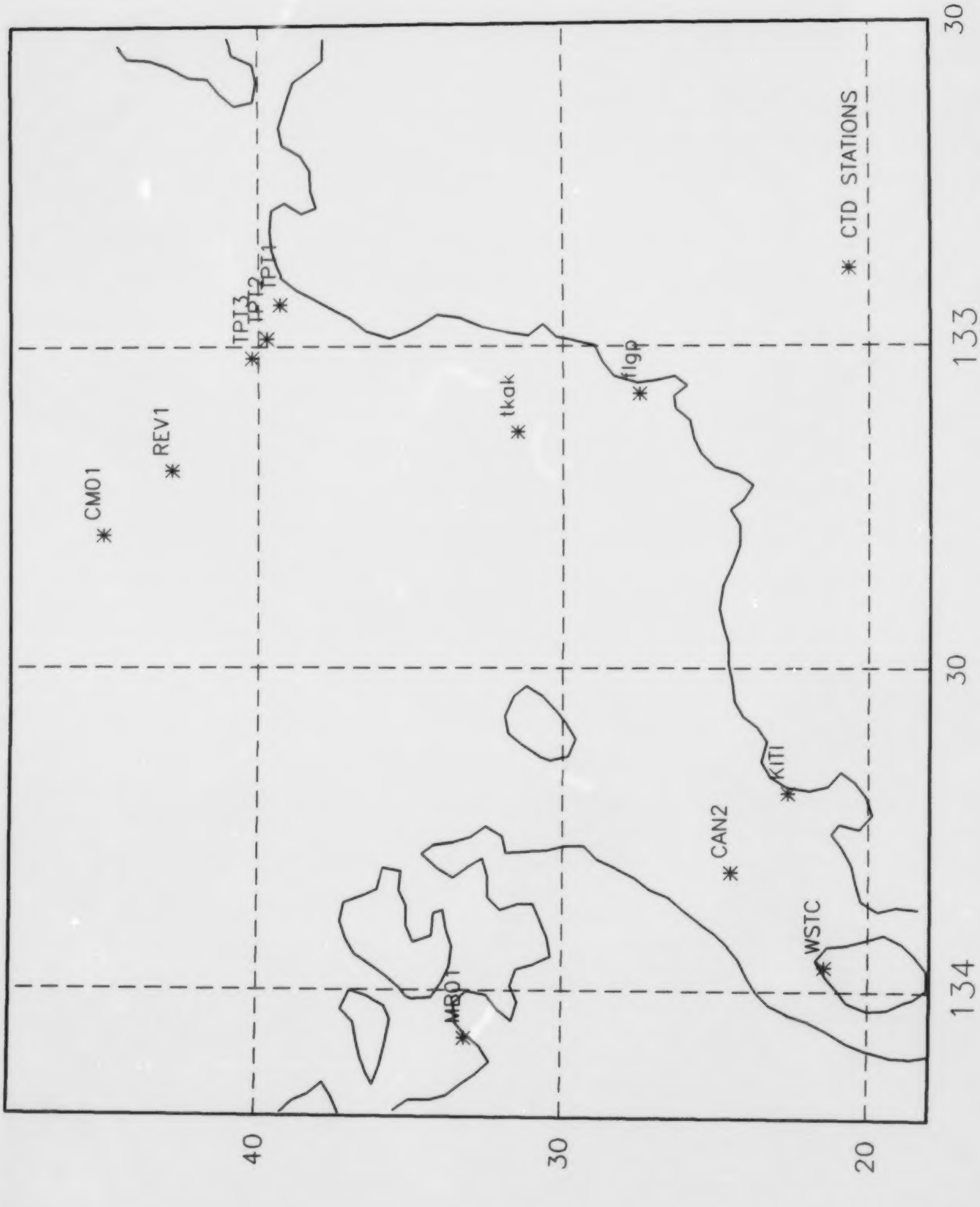


Figure 2: Detail of CTD station locations in Kugmallit Bay/Mackenzie River.

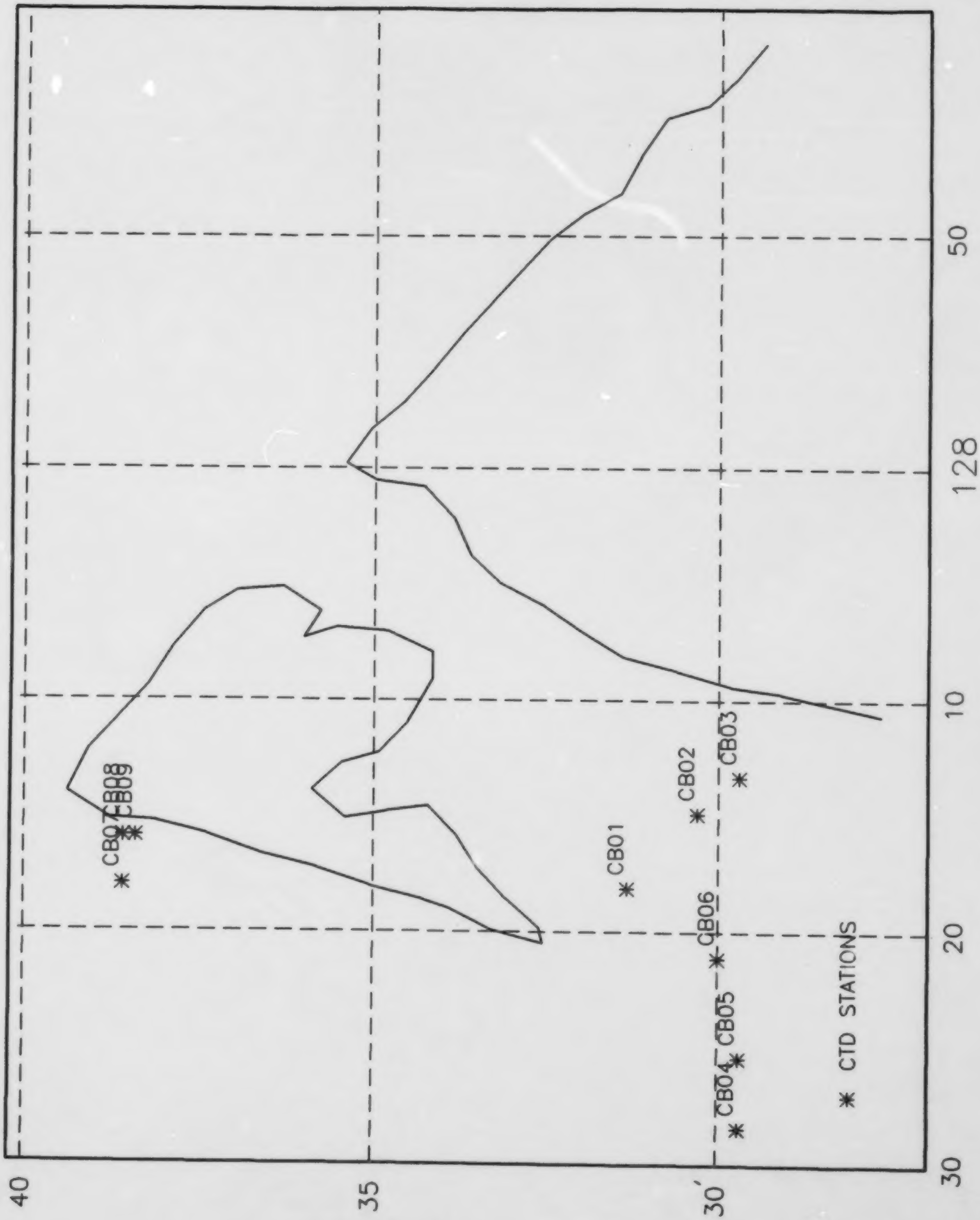


Figure 3: Detail of CTD station locations at Cape Bathurst.

2 CTD DATA COLLECTION AND TREATMENT

Three Applied Microsystems STD-12 instruments (SN 405, 517, 510) were used to collect CTD (Conductivity-Temperature-Depth) data. The 510 instrument was used only as a backup and none of its data (3 stations) are reported here as it suffered from a poor calibration. CTD station locations are plotted in Figures 1, 2, and 3. STD 405 and 517 were each configured with dual high/low range conductivity sensors for both fresh and salt water use ("F" next to the cast number listing on page 16 indicates that the CTD was set to fresh water mode for that cast). For all but one station (SL01), CTD casts were done with only one of the two primary CTDs.

Data were logged in internal memory in the CTD probe during each cast. When a cast was completed, the data were transferred to RAM-disk cards using an Atari Portfolio computer. At the end of each day all cast files were copied from the Atari RAM cards to a PC hard drive and backups were kept on floppy disks. Data were collected at a nominal rate of 10 samples per metre.

2.1 Calibrations

Both 405 and 517 were calibrated at the factory just prior to going into the field. These were followed by post-trip calibrations (high conductivity range only). The post-trip calibrations verified that no significant change in the pressure or temperature responses occurred for either unit. However, shifts in conductivity response were measured. Table 1 lists the sensor ranges, pre-trip calibration standard deviations and post-trip calibration differences for units 405 and 517. From Table 2 it is clear that unit 517 had a very consistent -0.0033 shift in conductivity ratio over the range of conductivities measured in the calibration (0.56 to 0.98). At -1 $^\circ$ C this would amount to a shift of approximately 0.2 PSU in salinity. This shift is indicative of a problem with the conductivity cell in unit 517 which was also noted from the bottle data comparisons discussed later.

The shift of -0.00057 in unit 405's conductivity response is equivalent to a shift of approximately 0.02 PSU at -1° C. While this difference is significant, it probably reflects the general accuracy limit of the instrument rather than a specific problem.

2.2 Data Processing

The following steps were performed during the processing of each CTD cast:

1. Raw values for pressure, temperature, and conductivity were converted to engineering units using the calibration coefficients determined in the pre-cruise laboratory calibrations. At the start of each cast a reading was recorded with the CTD in the air and this value was subtracted from the pressures in the cast to remove any zero-offset.

2. Salinity was calculated from temperature and conductivity using the Practical Salinity Scale-78.

3. Pressure readings for each cast were smoothed using an 11-point (approximately 1 m), unweighted, running average. This was done to eliminate noise in the data introduced by the pressure sensor.

4. Pressure data for each cast were made monotonic by removing any data values from the casts in which the pressure was less than that for the previous accepted value.

5. Erroneous values (spikes) were removed from the data manually. This consisted primarily of deleting the top 2 m of data from the casts done through a hole in the ice.

Table 1: CTD Calibration data.

Parameter		S/N 517	S/N 405
Pressure	Range	0 to 1378 dBars	0 to 690 dBars
	Calib. Std. Dev.	+/- 0.31 dBars	+/- 0.07 dBars
	Post-Trip Calib. Difference	0.69 +/- 0.08 dBars	0.36 +/- 0.17 dBars
Temperature	Range	-2 to +38 deg. C	-2 to +38 deg. C
	Calib. Std. Dev.	+/- 0.0067 deg. C	+/- 0.0089 deg. C
	Post-Trip Calib. Difference	-0.00224 +/- 0.0116 deg. C	-0.00171 +/- 0.0111 deg. C
Conductivity (High Range)	Range	0 to 40 (RATIO)	0 to 40 (RATIO)
	Calib. Std. Dev.	+/- 0.00047 (RATIO)	+/- 0.00017 (RATIO)
	Post-Trip Calib. Difference	-0.0033 +/- 0.00017 (RATIO)	-0.00057 +/- 0.00021 (RATIO)
Conductivity (Low Range)	Range	0 to 2 (RATIO)	0 to 2 (RATIO)
	Calib. Std. Dev.	+/- 0.00036 (RATIO)	+/- 0.000067 (RATIO)
	Post-Trip Calib. Difference	N/A	N/A

6. An offset of -0.0617 PSU was applied to all salinity values taken with the CTD 517 (as outlined in the validation section).

7. Pressure, temperature, and salinity data for each cast were decimated into half-metre bins using a simple averaging process.

8. Derived quantities were calculated from the pressure, temperature, and salinity data using the algorithms given in *Fofonoff and Millard*, [1983]. The decimated data, and derived quantities, have been used to produce the plots and tables found in Appendix 1.

2.3 Data Validation

A field intercomparison between CTD 405 and CTD 517 is available for station SL01. Two casts using 517 (#3 and #4) and one using 405 (#5) were compared (Fig. 4). From Fig. 4, we see no perceptible shift in temperature between the two 517 casts, but there is a shift in salinity (approximately 0.05 PSU). This is five times the accuracy specified for the instrument. Comparing temperature between the 517 and 405 casts we see a difference of less than 0.005 °C; this is well

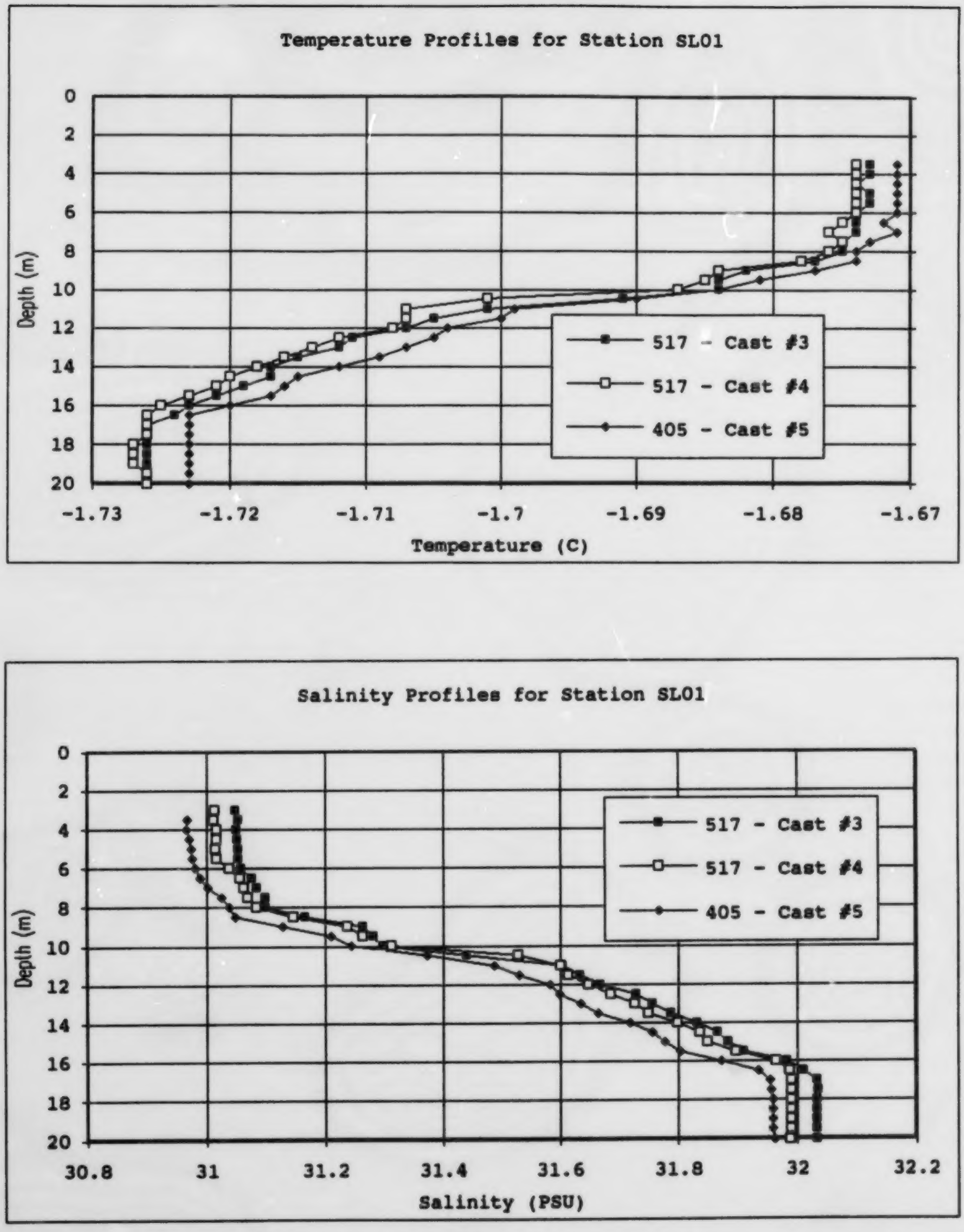


Figure 4: Comparison of CTD casts; top panel shows temperature, bottom panel shows salinity.

Table 2: Bottle – CTD salinity differences.

	Salinity Difference (PSU) Bottle – CTD	
	S/N 405	S/N 517
Mean	0.000084	-0.0617
Std. Dev.	0.02331	0.0334
n	25	15

within the instrument accuracy. For salinity, however, there is up to a 0.12 PSU difference between the two units. Based on post-trip calibrations and bottle intercomparisons (see below) we ascribe the problem to the 517 instrument.

CTD readings were further validated by comparing CTD data with bottle salinities for stations where both were collected (bottle data are discussed later in the chemistry section). For this intercomparison, it is important to note that CTD casts and bottle samples were not collected simultaneously (although they were always collected within 1 hour of each other), and that depth for the CTD was determined from the pressure sensor, while depth for the bottles was estimated by length of wire out. Strong gradients in salinity with either time or depth would invalidate such an intercomparison. To quantify the Bottle - CTD intercomparison, the property differences ($\Delta = X_{Bottle} - X_{CTD}$) were calculated for each salinity sample where the salinity gradient at the depth of the bottle was less than 0.01 PSU/metre. For the most part, only the stations farthest away from shore had sufficiently uniform profiles to be used in this intercomparison.

Figure 5 shows the salinity differences (Bottle - CTD) as a function of cast number, and Fig. 6 shows the salinity differences as a function of depth for two CTDs. For STD 405 (top panel), casts #9, #10, and #11 were run consecutively over the period of an afternoon. Cast #43 is unique in that it was taken after the CTD had already been in the water for 1 hour being towed behind the Zodiak in open water. Figure 6 (bottom panel) shows the salinity differences as a function of depth for CTD 517 casts #21 and #22, which were taken 3 1/2 hours apart on the same afternoon. CTD 405 shows a fairly random scattering of differences in the $\pm$0.04 PSU range. For a given cast, the spread of differences is within a range of about $\pm$0.01 PSU which is comparable to the specified accuracy for the AML STD-12 instrument. The shift in mean difference from cast to cast is probably due to the effect of temperature on the instrument's electronics. CTD 517, however, shows differences between bottle and CTD salinities of as much as -0.1 PSU with a range of $\pm$0.05 PSU in a single cast. With the exception of one point, the CTD salinities are higher than bottle salinities and there is a clear trend towards higher CTD salinity errors at greater depths. There is also an indication that the offset in CTD salinity is long-lasting in that cast #22 starts off at a large negative offset probably induced by cast #21. The behavior of CTD 517 salinity readings is consistent with what would happen if there were a leak in its conductivity cell. Table 2 gives the mean and standard deviation of the salinity differences calculated for both CTD 405 and 517 (this intercomparison includes data only from vertical profiles where the rate of change of salinity with depth was less than 0.01 PSU/m). Based on these statistics, we decided to apply a -0.0617 PSU offset to all CTD 517 salinities to bring them to better agreement with the bottle data.

The post-trip calibration of CTD 517 and the comparison between CTDs 405 and 517 suggest that the actual errors in CTD 517 salinity readings could be as large as 0.2 PSU for some casts. The actual uncertainty for that unit is certainly higher than 0.033 PSU, and probably closer to 0.1 PSU.

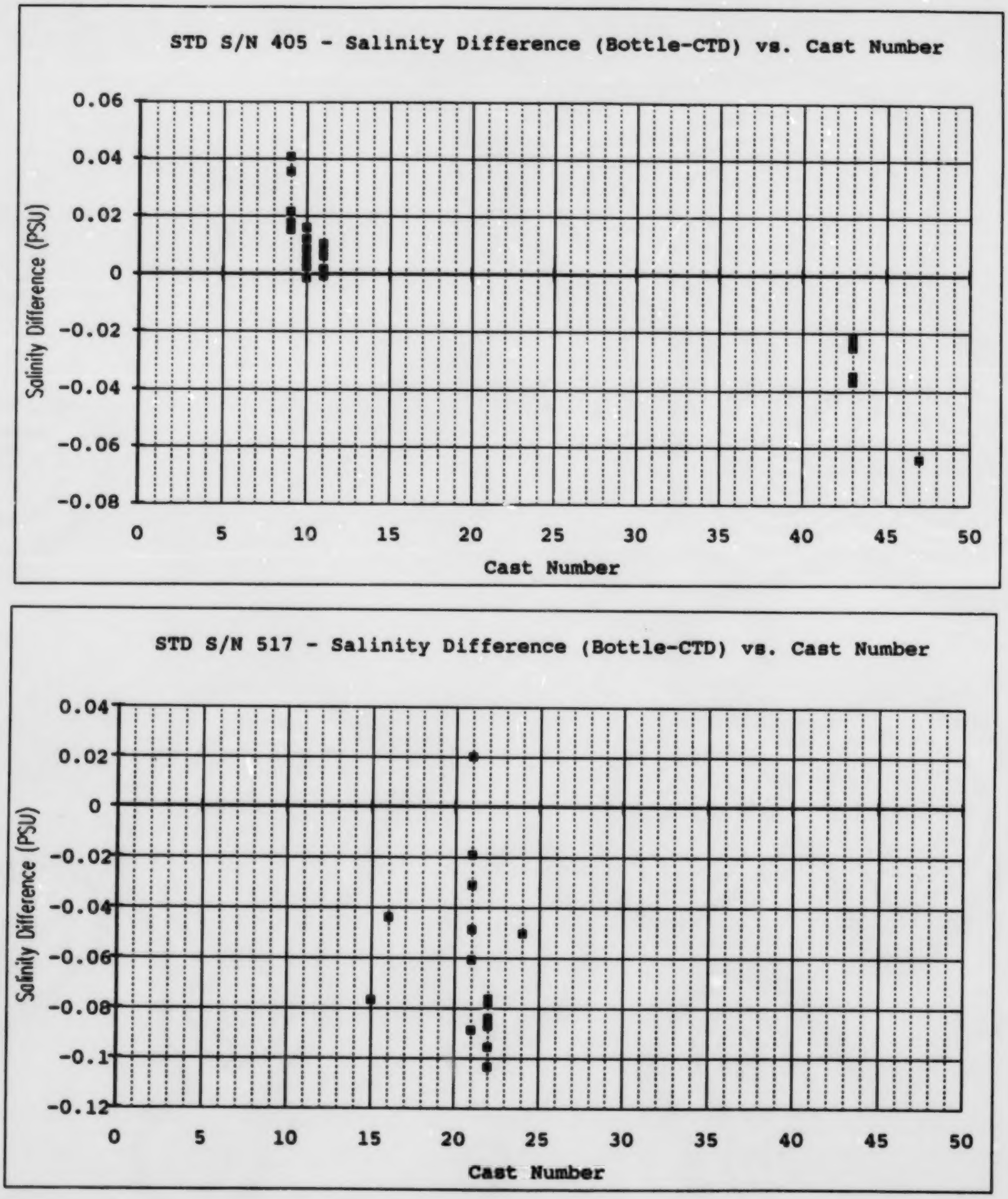
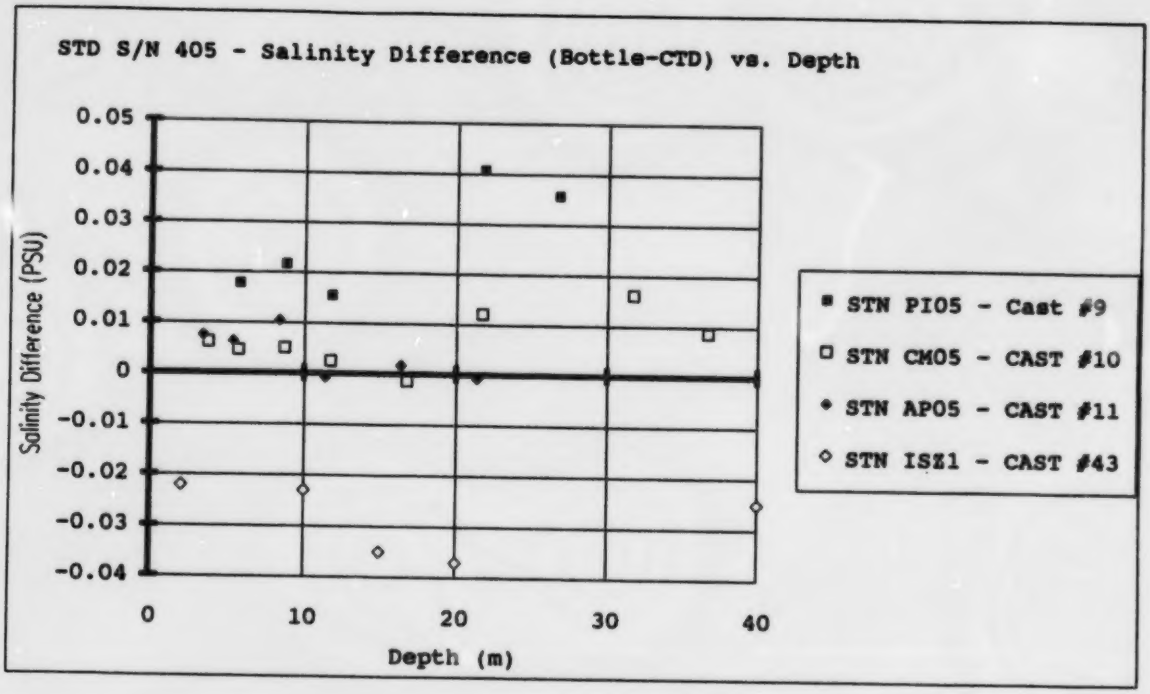


Figure 5: Intercomparison between bottle and CTD salinities; top panel shows STD 405, bottom panel shows STD 517.



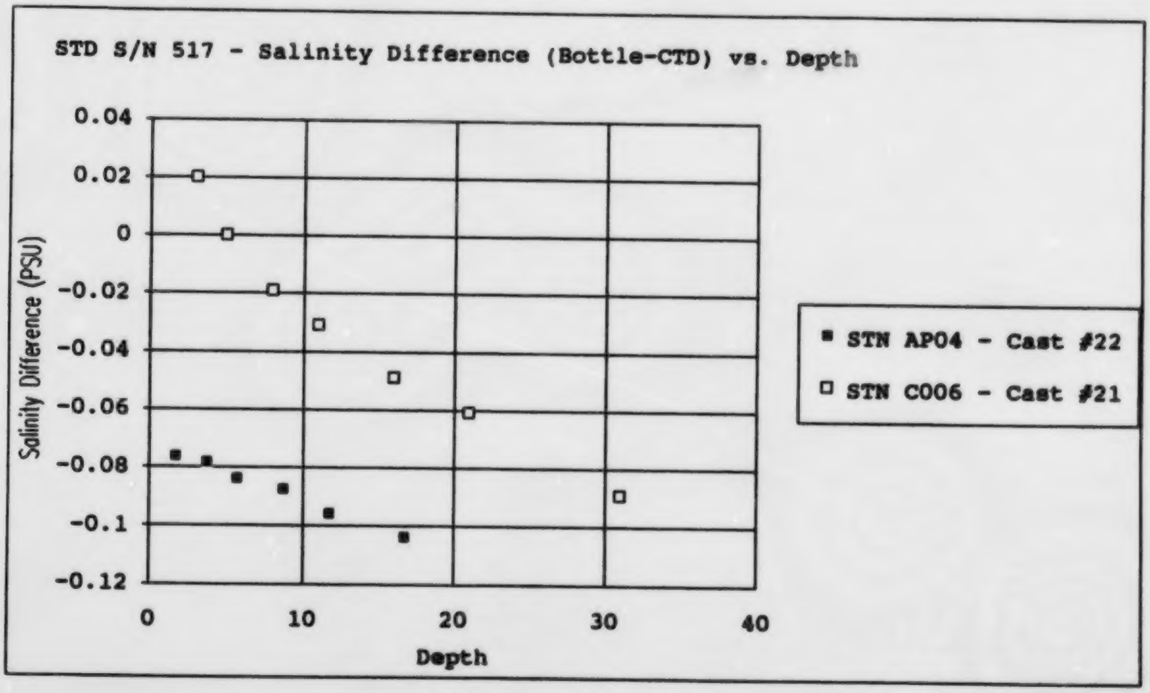


Figure 6: Bottle-CTD differences as a function of depth; top panel shows STD 405, Bottom panel shows STD 517.

3 CHEMICAL METHODS

3.1 Field Sampling

Sampling equipment and personnel were flown from PCSP in Tuktoyaktuk to the selected site by fixed wing aircraft (Twin Otter) or helicopter (Bell 206L Long Ranger). Sampling equipment included a hand winch, 1.7 L Niskin sampling bottles as well as submersible pump systems. The pumping system consisted of a 316 stainless steel magnetically coupled pump with Ryton gears coupled to a submersible well pump motor (Franklin Electric Co., 3450 RPM). Water was pumped through a 1.4 cm o.d. hose (Aeroquip 2807-8) constructed of smooth bore extruded Teflon TFE (1.0 cm i.d.) with a reinforcement and cover of one-braid, high tensile stainless steel wire. The pump delivered approximately 6 L/min, and the hose length (max depth) was 50 m. Locations for chemical sampling are shown in Fig. 7.

On the ice, a 25 cm hole was first augered and, when required by weather, a tent was placed over the hole. Bottle sampling followed standard oceanographic procedures. One depth was sampled at a time and subsampling from the bottles followed the order dissolved oxygen, salinity, nutrients, oxygen isotopes and Chl *a*. When the pump was used, a dilute ethanol-water mixture was kept in the hose to prevent freezing during transport and storage. Therefore, the hose was flushed at depth for 6 minutes before collecting the first sample at a station, and for 3 minutes at each specific depth after that. An amber latex hose was attached to the exit to draw dissolved oxygen samples. Other samples were collected following standard procedures. Samples were stored in an insulated box (with optional heating) to protect them from freezing and light; these were then shipped back to the Laboratory at Tuktoyaktuk on the same day (1-6 hours) when aircraft were used, and the next day when the snowmobile was used (Cape Bathurst). Chl *a* samples were collected into 1 L or 500 mL polyethylene bottles.

Oceanographic thermometers were not used due to the difficulty of manipulating them through an ice hole, and the rough treatment they would receive in the field. Temperatures are generally available from CTD casts carried out at the same location.

3.2 Laboratory Methods

Errors for the various methods reported here are expressed as precision and accuracy as summarized in Table 3. Pooled variance, s_p, is calculated as

$$s_p = \sqrt{\frac{\nu_1 s_1^2 + \cdots + \nu_i s_i^2}{\nu_1 + \cdots + \nu_i}}$$

where $\nu_i = n_i - 1$ degrees of freedom, and the n_i and s_i refer to the number of replicates and their standard deviation for the individual components used in the pooled standard deviation calculation.

3.3 Salinity

Salinity samples were drawn into 200 mL salinity bottles after 3 rinses from Niskin bottles or the pumping system. The samples were then capped tightly and care was taken to avoid freezing during sampling or transport. The salinities were analyzed at the DFO laboratory in Tuktoyaktuk on a Guildline Autosal (Model 8400A) instrument; data are reported in practical salinity units (psu) [see *Lewis and Perkin*; 1978]. During analyses the instrument was standardized against Standard Sea Water of salinity 34.995 (K_{15} = 0.99986). The Standard Sea Water was obtained from Standard Seawater Service, Institute of Oceanography, Wormley, Godalming, Surrey, England. Repeat determinations on a given sample for salinity had a precision of about ± 0.003 (instrumental

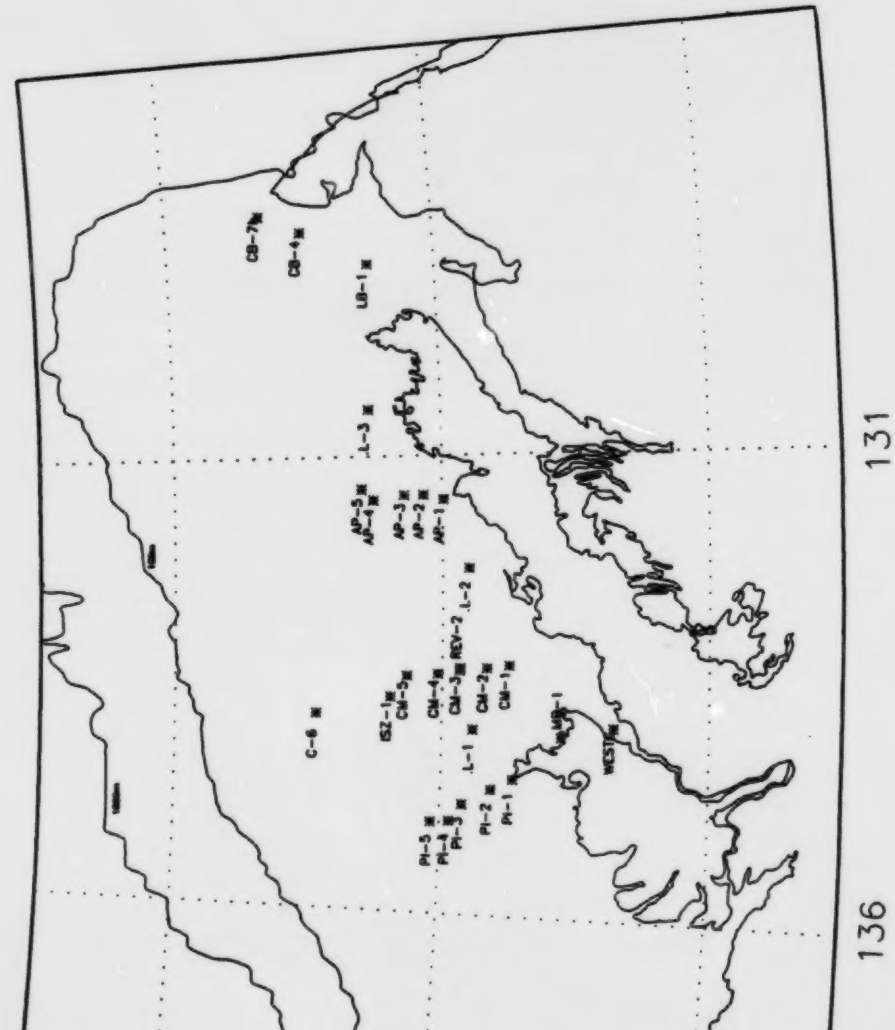


Figure 7: Chemical sampling locations.

Table 3: Estimates of error: basis of calculation and error models are given in the text.

measurement	units	precision (s_p)	Standard Reference Material
Salinity	psu	0.016	IAPSO Seawater
Silicate	mmol m^{-3}	0.20	Sagami
Nitrate	mmol m^{-3}	0.07	Sagami
Phosphate	mmol m^{-3}	0.02	Sagami
Dissolved O_2	mmol m^{-3}	0.8	Sagami KIO_3
Chl *a*	mg m^{-3}	0.02	No SRM available
Phaeo-pigment	mg m^{-3}	0.04	No SRM available

precision). Overall precision of sampling and analysis was evaluated from a set of 8 duplicates (pairs collected from the same depth). The pooled standard deviation was $s_p = 0.016$; $\Sigma\nu = 7$.

3.4 Dissolved Oxygen

Dissolved oxygen samples were "pickled" immediately in the field, protected from freezing, and returned to the Tuktoyaktuk laboratory for determination by the "Micro-Winkler" technique. Analyses were carried out within 24 hours of collection. Calibration of the thiosulphate solution was carried out with each titration set (daily) by using Sagami primary standard KIO_3. Precision of the method was routinely monitored during calibration and with blind replicate samples from the Niskin bottles or pumping system. For the data reported here, the pooled standard deviation was $s_p = 0.81$ mmolm^{-3}; $\Sigma\nu = 6$.

3.5 Nutrients

Samples for nutrient determination were collected into twice-rinsed glass and polystyrene test tubes (2 glass and 2 polystyrene tubes per sample), placed upright in protected, heated boxes or in the aircraft to prevent freezing. They were then transported back to the lab in Tuktoyaktuk where they were analyzed within one day. Nutrient determinations were performed using Technicon Autoanalyzer II components. Reactive silicate and nitrate plus nitrite were determined according to Technicon Industrial Methods No. 186-72 W and 158-71 W respectively, and soluble orthophosphate was determined using a modified Technicon method [*Brynjolfson;* 1973]. Sagami standards, prepared in 30.5$^o/_{oo}$ NaCl solutions, were used to calibrate secondary standards which were prepared every second day.

Nutrient samples were analyzed in duplicate and concentrations listed in the data tables are the averages of the duplicate analyses. The precision of the methods based on replicates was found to be: silicate, $s_p = 0.20$ mmol m^{-3}, $\Sigma\nu = 126$; orthophosphate, $s_p = 0.02$ mmol m^{-3}, $\Sigma\nu = 142$; nitrate, $s_p = 0.07$ mmol m^{-3}, $\Sigma\nu = 146$.

3.6 Chlorophyll *a*

Water samples (0.25-1.0 L) were filtered through 24-mm diameter Whatman GF/F glass fiber filters. Approximately 1 mL of 1% $MgCO_3$ solution was added to the samples just before filtration was complete. The inside of the filtration funnel was rinsed with about 10 mL of filtered sea water while continuing the filtration. After filtration, the filters were folded in half, placed in filter paper folded into quarters, labelled, and stored frozen in a dark bottle with silica gel in a

deep freezer. Chlorophyll *a* and phaeo-pigments were determined fluorometrically with a Turner Design fluorometer [*Strickland and Parsons*;1972]. Pooled standard deviation of replicates was for Chlorophyll *a* $s_p = 0.017$ mg m^{-3}, ($\Sigma\nu = 7$), and for phaeo-pigment $s_p = 0.039$ mg m^{-3}, ($\Sigma\nu = 7$).

4 References

Brynjolfson, S.J., 1973. A Modification of the Technicon methodology for the determination of orthophosphate in sea water. Paper presented at Water Resources Service, Vancouver, B.C.

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Lewis, E.L. and R.G. Perkin, 1978. The practical salinity scale 1978: conversion of existing data. *Deep Sea Res.*, **28A**, 307-328.

Macdonald, R.W., and E.C. Carmack, 1991. The role of large-scale under-ice topography in separating estuary and ocean on an Arctic shelf, *Atmosphere-Ocean*, **29**, 37-53.

Strickland, J.D.H. and T.R. Parsons, 1972. A practical handbook of sea water analysis, *Bulletin* **167**, Fisheries Research Board of Canada, Ottawa, 310 pp.

Station Name	Latitude	Longitude	CTD Cast Numbers S/N 405	S/N 517	S/N 510
AP01	69° 59.7' N	131° 28.0' W		60	
AP02	70° 04.2' N	131° 25.2' W		59	
AP03	70° 08.5' N	131° 25.1' W		24	
AP04	70° 15.5' N	131° 28.5' W		22	23
AP05	70° 18.0' N	131° 21.3' W	11		
AP06	70° 18.4' N	131° 54.2' W		36	
BOAT	70° 11.1' N	133° 38.8' W	41		
C006	70° 28.3' N	133° 51.5' W		21	
CAN2	69° 24.5' N	133° 49.0' W	34F		
CB01	70° 31.3' N	128° 18.1' W	48		
CB02	70° 30.3' N	128° 14.9' W	50		
CB03	70° 29.7' N	128° 13.3' W	51		
CB04	70° 29.8' N	128° 28.4' W	52		
CB05	70° 29.7' N	128° 25.4' W	53		
CB06	70° 30.0' N	128° 21.1' W	54		
CB07	70° 38.6' N	128° 18.0' W	55		
CB08	70° 38.6' N	128° 15.9' W	56		
CB09	70° 38.4' N	128° 15.9' W	57		
CD01	70° 20.0' N	129° 40.0' W		44	
CD02	70° 25.0' N	129° 40.0' W		45	
CD03	70° 31.5' N	129° 39.5' W		40	
CD04	70° 40.0' N	129° 40.8' W		39	
CD05	70° 48.3' N	129° 40.4' W		37	38
CM01	69° 45.0' N	133° 17.7' W		32	
CM02	69° 50.0' N	133° 20.0' W		17	
CM03	69° 56.0' N	133° 21.6' W		16	
CM04	70° 01.0' N	133° 23.9' W		15	
CM05	70° 08.1' N	133° 25.3' W	10		
FLGP	69° 27.5' N	133° 04.4' W	13F		
GI01	69° 30.2' N	136° 09.5' W	71		
GI02	69° 38.1' N	136° 22.0' W	77		
GI03	69° 43.9' N	136° 31.9' W	78		
HI01	69° 28.0' N	138° 50.6' W	72		
HI02	69° 36.8' N	138° 47.8' W	73		
ISZ1	70° 11.6' N	133° 40.8' W	43		
KITI	69° 22.6' N	133° 41.7' W	12F		
KP01	69° 18.8' N	138° 10.5' W	74		
KP02	69° 23.9' N	138° 07.5' W	75		
KP03	69° 30.0' N	138° 08.4' W	76		
L001	69° 53.0' N	133° 60.0' W		31	
L002	69° 54.0' N	132° 13.8' W		35	
L003	70° 16.3' N	130° 29.7' W		58	
LB01	70° 15.0' N	128° 52.4' W	47		
LB02	69° 59.8' N	129° 10.4' W		64	
LB03	69° 42.3' N	130° 25.8' W		63	
LB04	69° 30.2' N	131° 29.8' W		62,66	
LB05	69° 29.0' N	131° 45.0' W		65	
LB06	69° 20.4' N	131° 57.6' W		67	
LB07	69° 13.4' N	132° 26.8' W		68	
LB08	69° 11.2' N	132° 41.5' W		69	
LB09	68° 59.4' N	132° 57.5' W		70	
MB01	69° 33.2' N	134° 04.5' W		61	
PI01	69° 43.8' N	134° 31.2' W		30	
PI02	69° 48.7' N	134° 38.2' W		29	
PI03	69° 55.0' N	134° 48.0' W		20	
PI04	69° 57.9' N	134° 53.7' W		19	18
PI05	70° 02.0' N	135° 00.0' W	9		
REV1	69° 42.8' N	133° 11.6' W		1	
REV2	69° 56.0' N	133° 20.7' W		2,8,46	
SL01	69° 53.6' N	135° 39.2' W	5	3,4	
SL02	69° 47.6' N	135° 37.8' W		6	
SL03	70° 00.0' N	131° 28.6' W		7	
TKAK	69° 31.5' N	133° 08.0' W	14		
TPT1	69° 39.3' N	132° 56.1' W	25		
TPT2	69° 39.8' N	132° 59.3' W	27		
TPT3	69° 40.2' N	133° 01.1' W	28		
WSTC	69° 21.4' N	133° 57.7' W	33		

5 APPENDIX 1; AML CTD DATA; TABLES AND PLOTS

5.1 Description of CTD Data Plots

For the following data tables each page represents one cast with the cast number given as the last three digits in the reference number. Two plots are provided for each page: a profile of temperature and salinity, and a T-S plot. The T-S plots also show the freezing point line and two or three sigma-t lines (value given next to the line). A table of measured and computed properties is also provided for each cast. The units used for each property are as follows:

Measurement	Abbreviation	Units
PRESSURE	PRESS	decibars
DEPTH	DEPTH	m
TEMPERATURE	TEMP	°C
POTENTIAL TEMP	THETA	°C
SALINITY	SAL	pss-78
DENSITY†	SIGMA T	g/m^3)
DYNAMIC HEIGHT ANOMALY	DYN HT	m
SPECIFIC VOLUME ANOMALY	SVAN	$10^{-8}m^3/kg$
BRUNT VAISALA FREQUENCY	POT EN	1/s
SOUND SPEED	SOUND SPEED	m/s

† The quantity reported for density is actually $\gamma(S,t,0)$ [UNESCO, 1987].

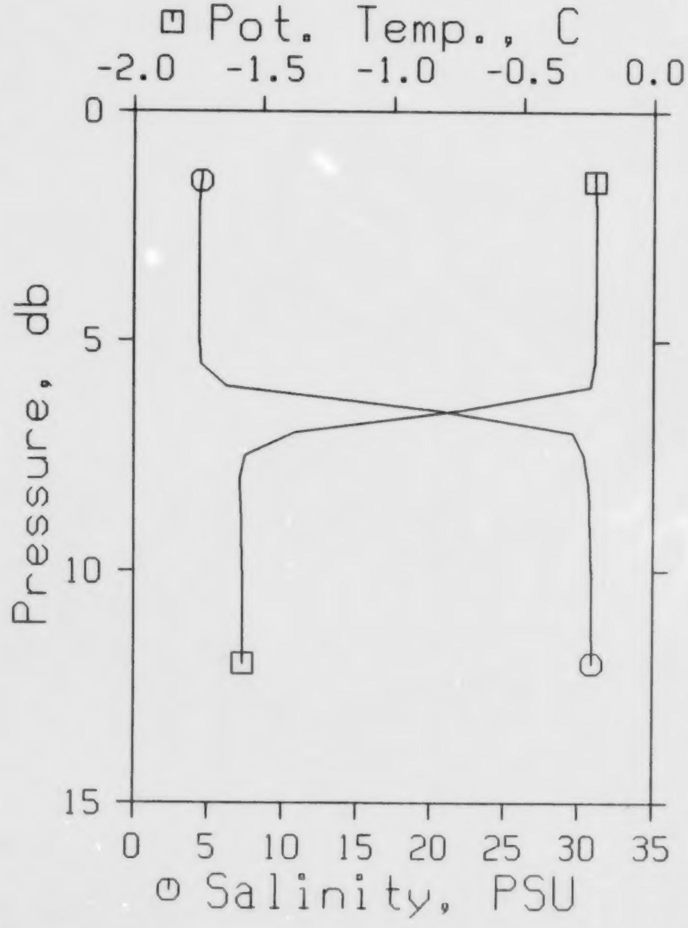
Only one cast for each station is reported when multiple casts from CTD 405 and CTD 517 are available. Specifically: at station LB04 cast #62 is reported, at station REV2 cast #46 is reported, and at station SL01 cast #5 is reported.

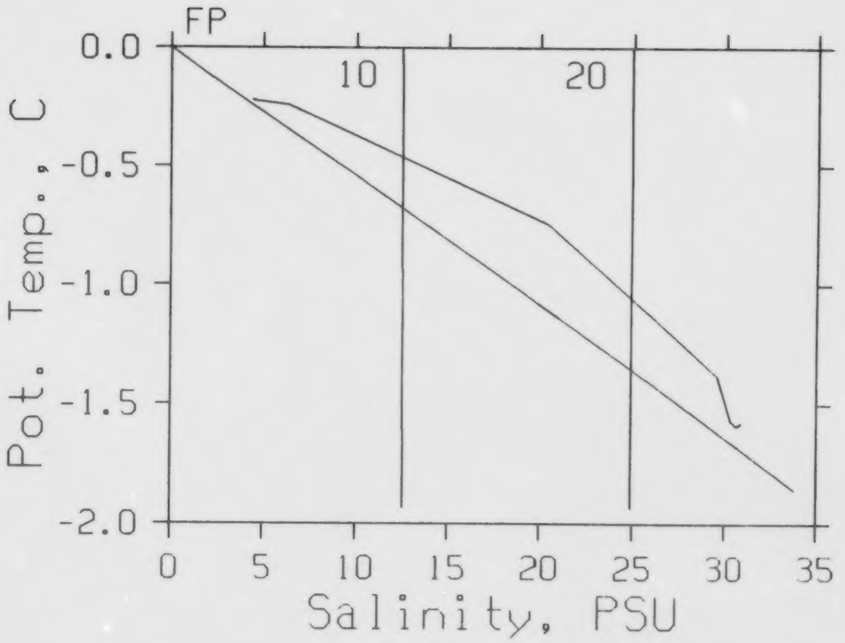
Each cast was plotted using a temperature scale of -2 to 0 °C and a salinity scale of 0 to 35 PSU. Where warranted, a second page may also be provided showing all or part of the cast on a smaller scale to reveal more detail.

TOW1 is unique: it is *not* a vertical cast – rather it is a surface tow of the CTD behind a Zodiac boat in open water.

NOGAP ICEWORK 1991
STATION : AP01
REFERENCE NO.: 91-09-060
DATE/TIME : 07/05/91 15:10 MDT
POSITION : 69-59.7N 131-28.0W

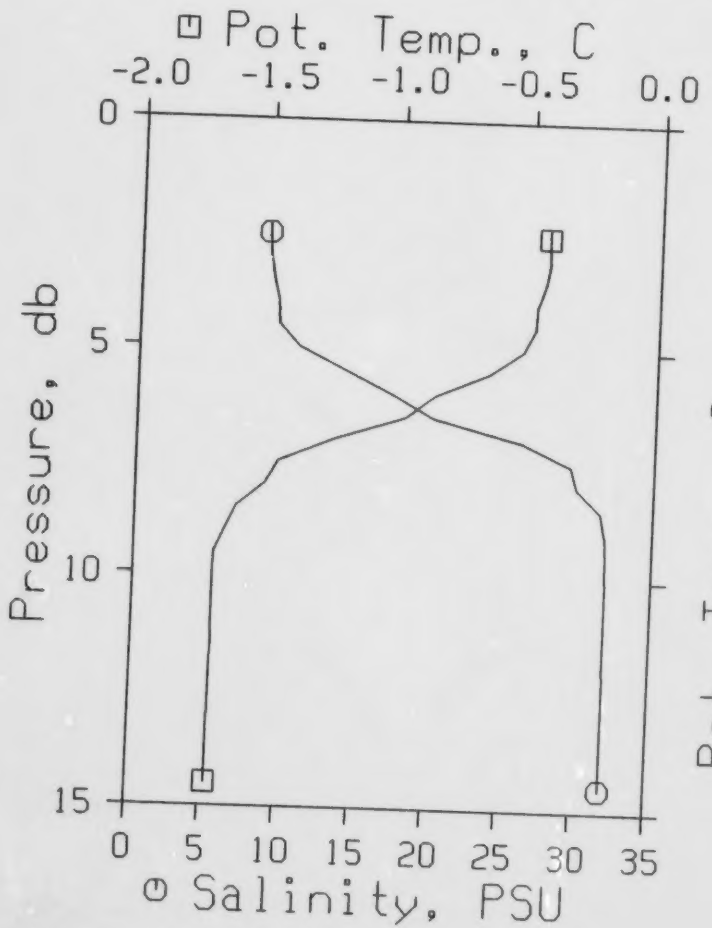
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.219	-.219	4.433	3.47	2390.8	.48	.00	1407
4	4	-.219	-.219	4.426	3.46	2391.3	.95	.02	1407
6	6	-.241	-.241	6.300	4.98	2240.8	1.43	.04	1410
8	8	-1.590	-1.590	30.639	24.66	329.8	1.59	.05	1436
10	10	-1.579	-1.579	30.879	24.85	311.2	1.65	.06	1436
12	12	-1.578	-1.578	30.954	24.91	305.4	1.71	.07	1436

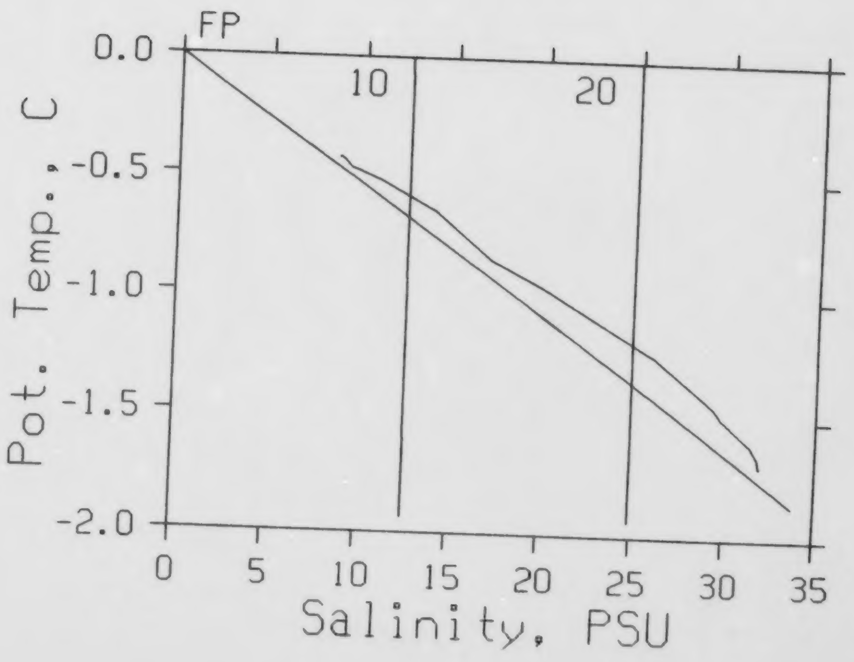




NOGAP ICEWORK 1991
STATION : AP02
REFERENCE NO.: 91-09-059
DATE/TIME : 04/05/91 13:20 MDT
POSITION : 70- 4.2N 131-25.2W

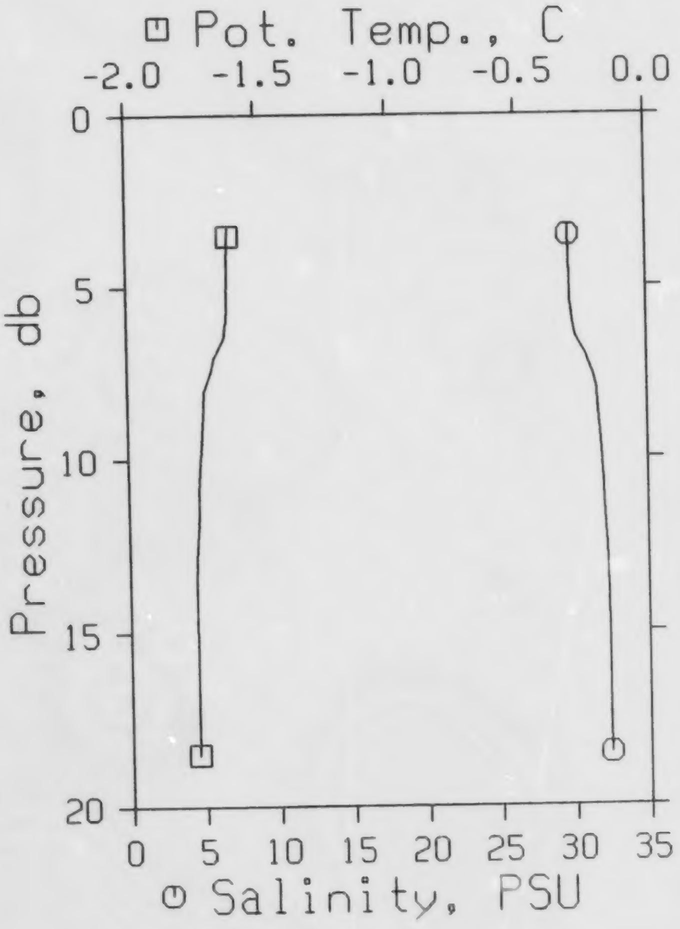
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.429	-.429	8.620	6.85	2056.0	.41	.01	1412
4	4	-.471	-.471	9.323	7.42	2000.1	.82	.02	1413
6	6	-.851	-.851	17.149	13.73	1381.6	1.18	.03	1421
8	8	-1.498	-1.498	29.869	24.03	389.5	1.34	.05	1435
10	10	-1.690	-1.690	31.945	25.72	228.7	1.39	.05	1437
15	14	-1.691	-1.691	31.989	25.76	225.3	1.49	.06	1437

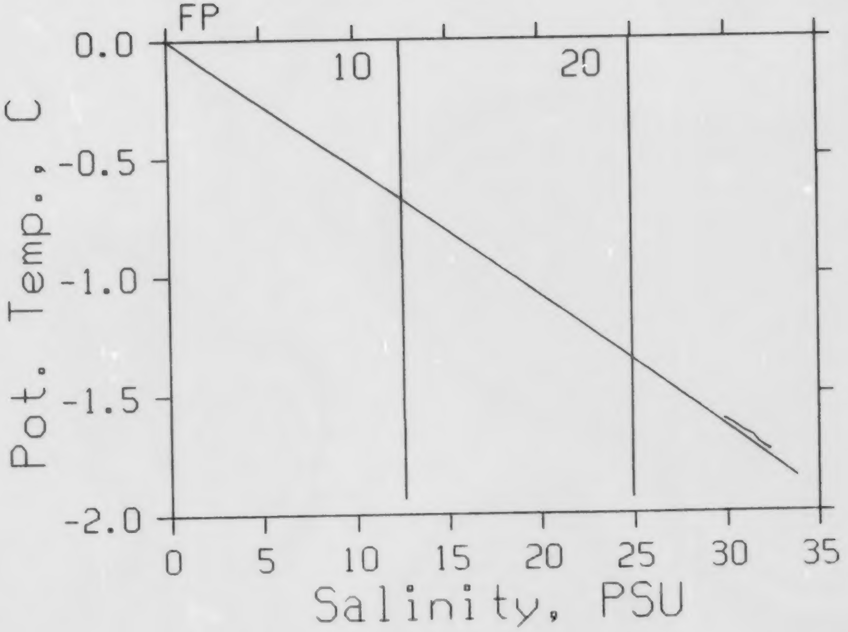




NOGAP ICEWORK 1991
STATION : AP03
REFERENCE NO.: 91-09-024
DATE/TIME : 29/04/91 19:13 MDT
POSITION : 70- 8.5N 131-25.1W

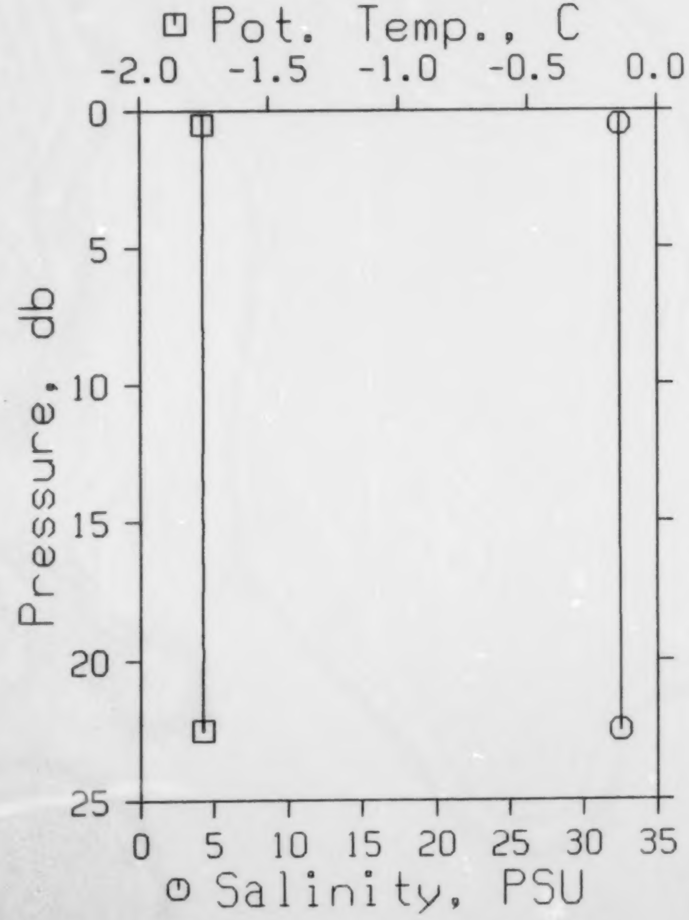
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.608	-1.608	29.820	23.99	393.1	.08	.00	1435
4	4	-1.610	-1.610	29.859	24.02	390.1	.16	.00	1435
6	6	-1.617	-1.617	30.053	24.18	375.1	.23	.01	1435
8	8	-1.703	-1.703	31.651	25.48	251.3	.30	.01	1437
10	10	-1.722	-1.722	31.956	25.73	227.8	.35	.02	1437
15	15	-1.741	-1.741	32.343	26.05	197.8	.45	.03	1438
19	18	-1.740	-1.740	32.358	26.06	196.7	.52	.04	1438

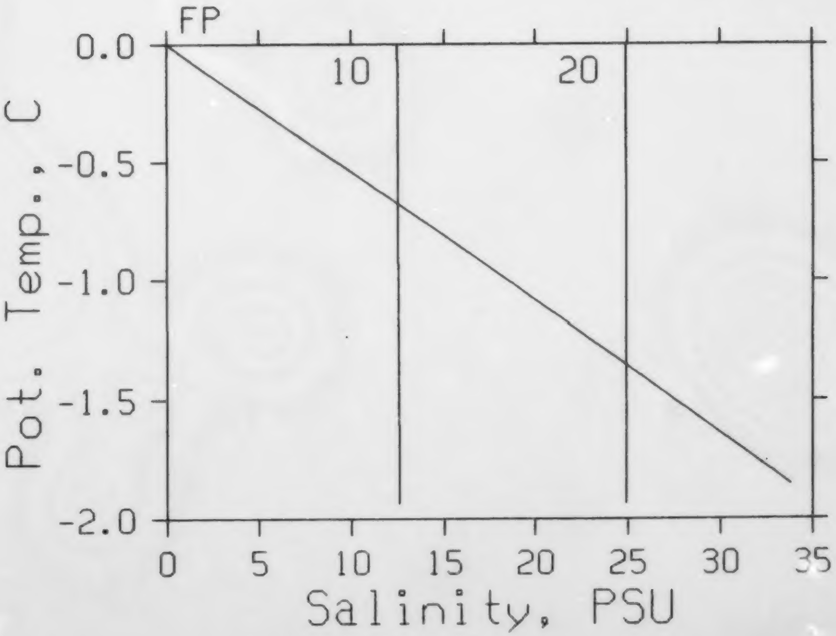




NOGAP ICEWORK 1991
STATION : AP04
REFERENCE NO.: 91-09-022
DATE/TIME : 29/04/91 17:25 MDT
POSITION : 70-15.5N 131-28.5W

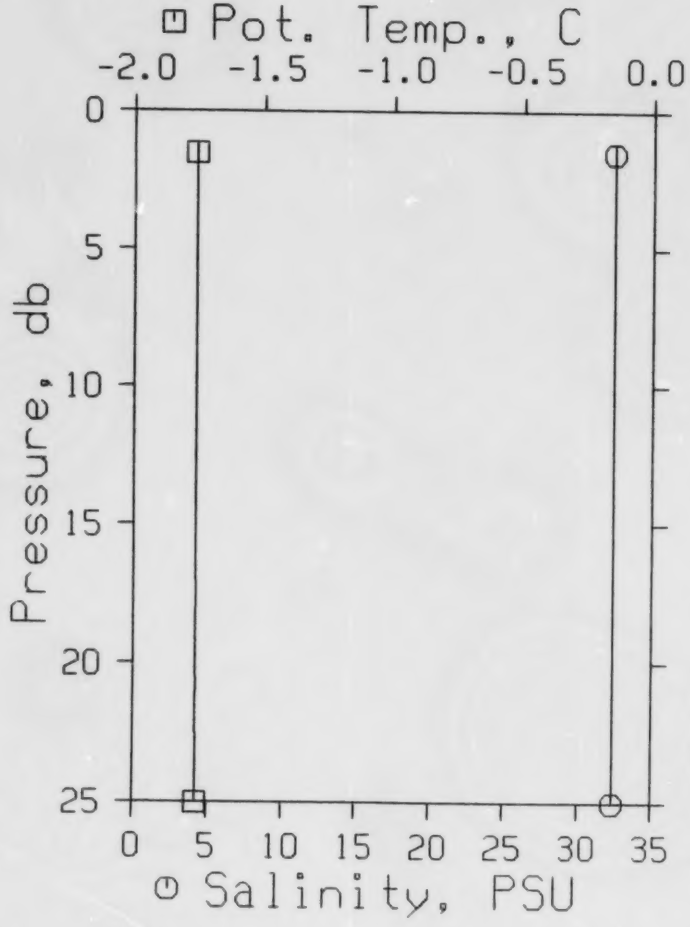
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.754	-1.754	32.491	26.17	186.4	.04	.00	1438
4	4	-1.754	-1.754	32.495	26.17	186.1	.07	.00	1438
6	6	-1.755	-1.755	32.494	26.17	186.2	.11	.00	1438
8	8	-1.755	-1.755	32.503	26.17	185.5	.15	.01	1438
10	10	-1.754	-1.754	32.501	26.17	185.6	.19	.01	1438
15	15	-1.755	-1.755	32.508	26.18	185.1	.28	.02	1438
20	20	-1.755	-1.755	32.520	26.19	184.1	.37	.04	1438
23	22	-1.755	-1.755	32.523	26.19	183.9	.42	.05	1438

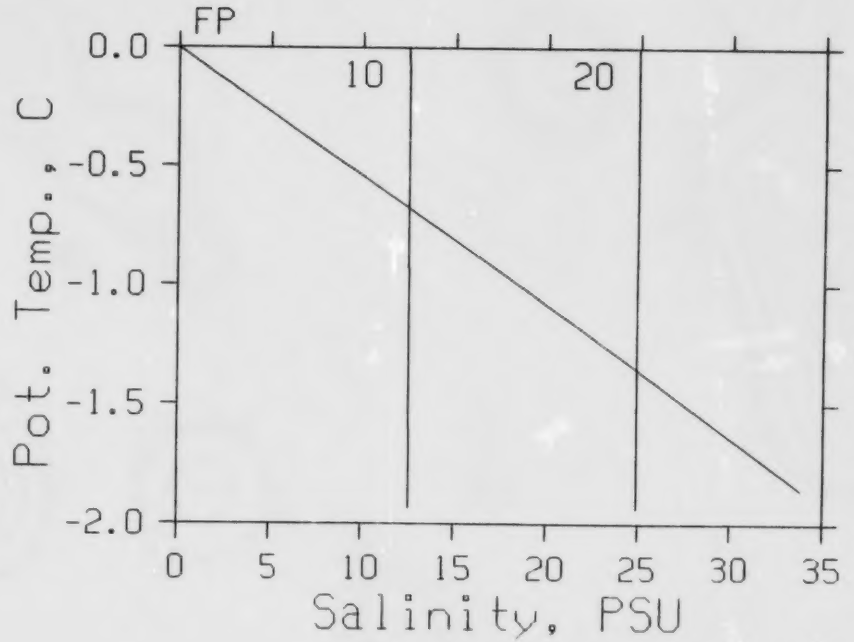




NOGAP ICEWORK 1991
STATION : AP05
REFERENCE NO.: 91-09-011
DATE/TIME : 26/04/91 20:53 MDT
POSITION : 70-18.0N 131-21.3W

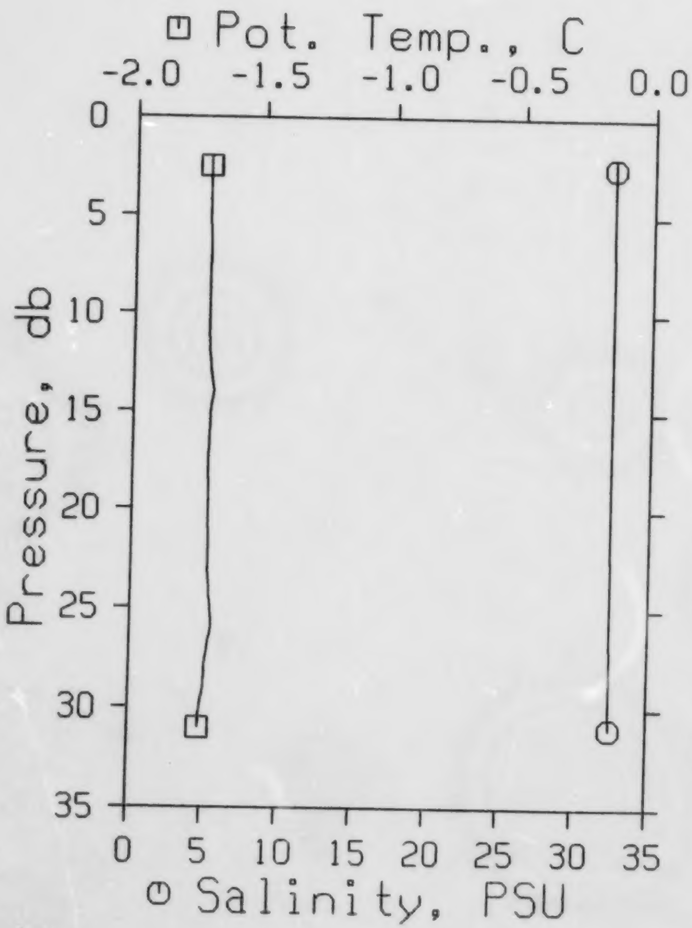
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.761	-1.761	32.373	26.07	195.5	.04	.00	1437
4	4	-1.760	-1.760	32.376	26.07	195.2	.08	.00	1437
6	6	-1.760	-1.760	32.375	26.07	195.3	.12	.00	1437
8	8	-1.760	-1.760	32.378	26.07	195.1	.16	.01	1437
10	10	-1.761	-1.761	32.379	26.08	195.0	.20	.01	1437
15	15	-1.760	-1.760	32.381	26.08	194.9	.29	.02	1438
20	20	-1.760	-1.760	32.381	26.08	194.9	.39	.04	1438
25	25	-1.759	-1.759	32.380	26.08	194.9	.49	.06	1438

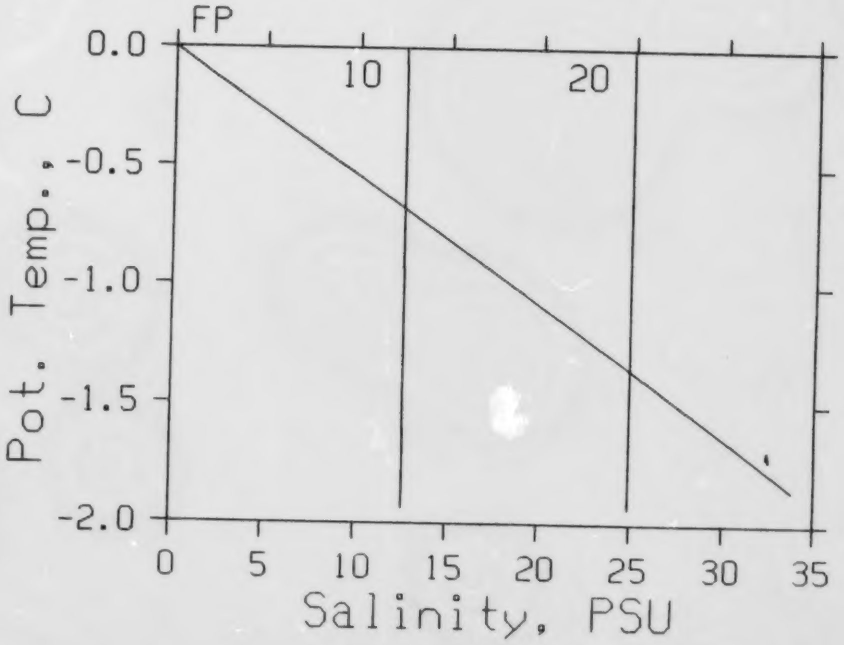




NOGAP ICEWORK 1991
STATION : AP06
REFERENCE NO.: 91-09-036
DATE/TIME : 03/05/91 10:29 MDT
POSITION : 70-18.4N 131-54.2W

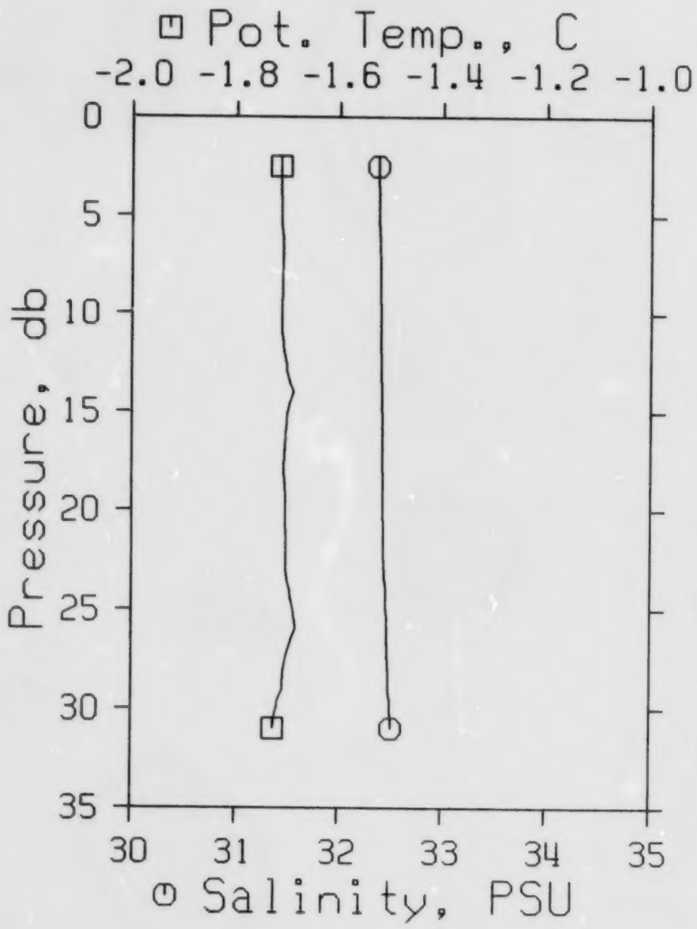
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.715	-1.715	32.374	26.07	195.5	.04	.00	1438
4	4	-1.714	-1.714	32.382	26.08	194.9	.08	.00	1438
6	6	-1.711	-1.711	32.389	26.08	194.3	.12	.00	1438
8	8	-1.711	-1.711	32.397	26.09	193.7	.16	.01	1438
10	10	-1.713	-1.713	32.403	26.09	193.3	.19	.01	1438
15	15	-1.700	-1.700	32.418	26.10	192.1	.29	.02	1438
20	20	-1.705	-1.705	32.426	26.11	191.5	.39	.04	1438
25	25	-1.689	-1.689	32.464	26.14	188.6	.48	.06	1438
30	30	-1.720	-1.720	32.505	26.18	185.4	.58	.09	1438
31	31	-1.727	-1.728	32.516	26.18	184.5	.59	.09	1438

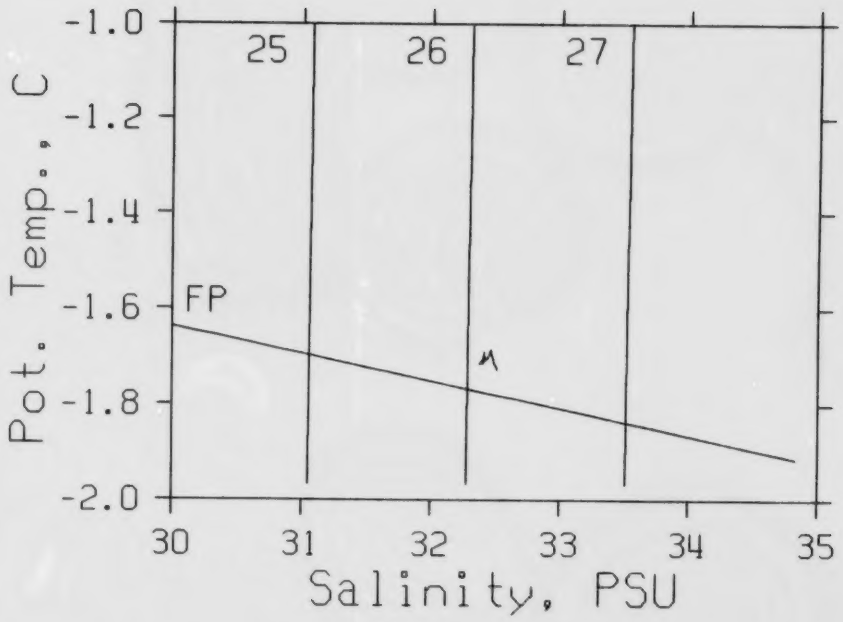




NOGAP ICEWORK 1991
STATION : AP06
REFERENCE NO.: 91-09-036
DATE/TIME : 03/05/91 10:29 MDT
POSITION : 70-18.4N 131-54.2W

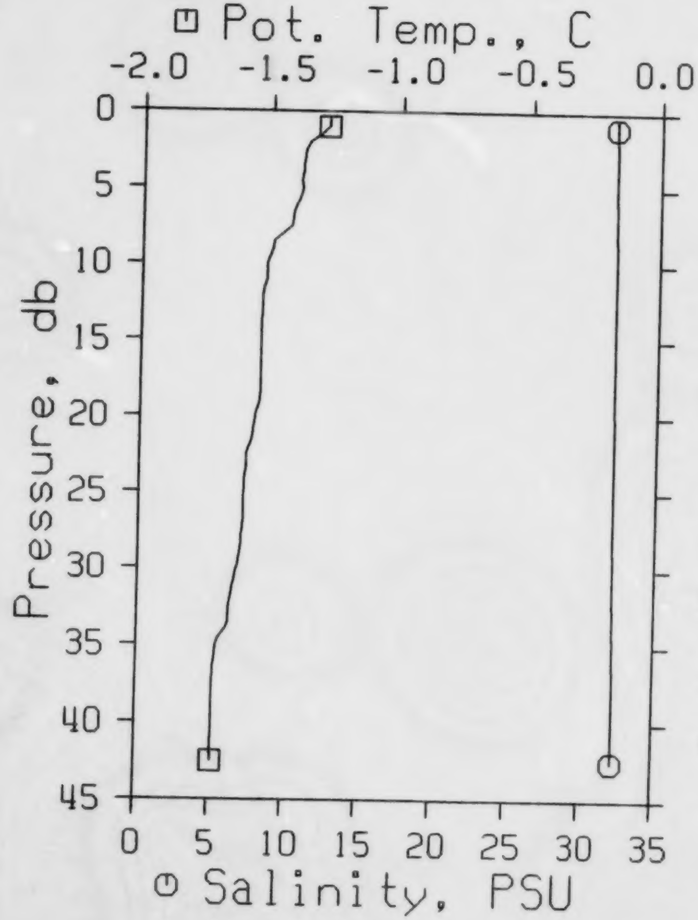
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.715	-1.715	32.374	26.07	195.5	.04	.00	1438
4	4	-1.714	-1.714	32.382	26.08	194.9	.08	.00	1438
6	6	-1.711	-1.711	32.389	26.08	194.3	.12	.00	1438
8	8	-1.711	-1.711	32.397	26.09	193.7	.16	.01	1438
10	10	-1.713	-1.713	32.403	26.09	193.3	.19	.01	1438
15	15	-1.700	-1.700	32.418	26.10	192.1	.29	.02	1438
20	20	-1.705	-1.705	32.426	26.11	191.5	.39	.04	1438
25	25	-1.689	-1.689	32.464	26.14	188.6	.48	.06	1438
30	30	-1.720	-1.720	32.505	26.18	185.4	.58	.09	1438
31	31	-1.727	-1.728	32.516	26.18	184.5	.59	.09	1438

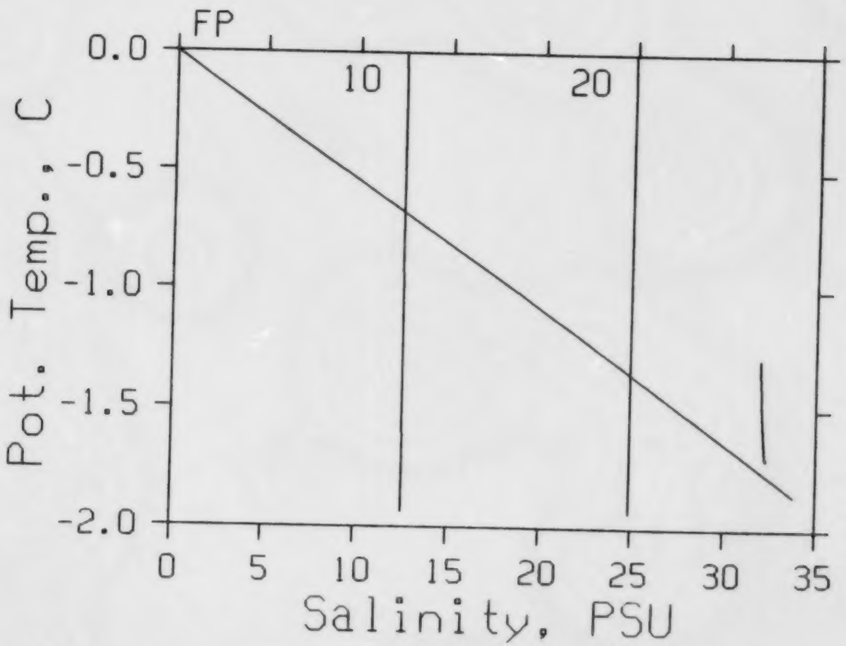




NOGAP ICEWORK 1991
STATION : BOAT
REFERENCE NO.: 91-09-041
DATE/TIME : 03/05/91 14:48 MDT
POSITION : 70-11.1N 133-38.8W

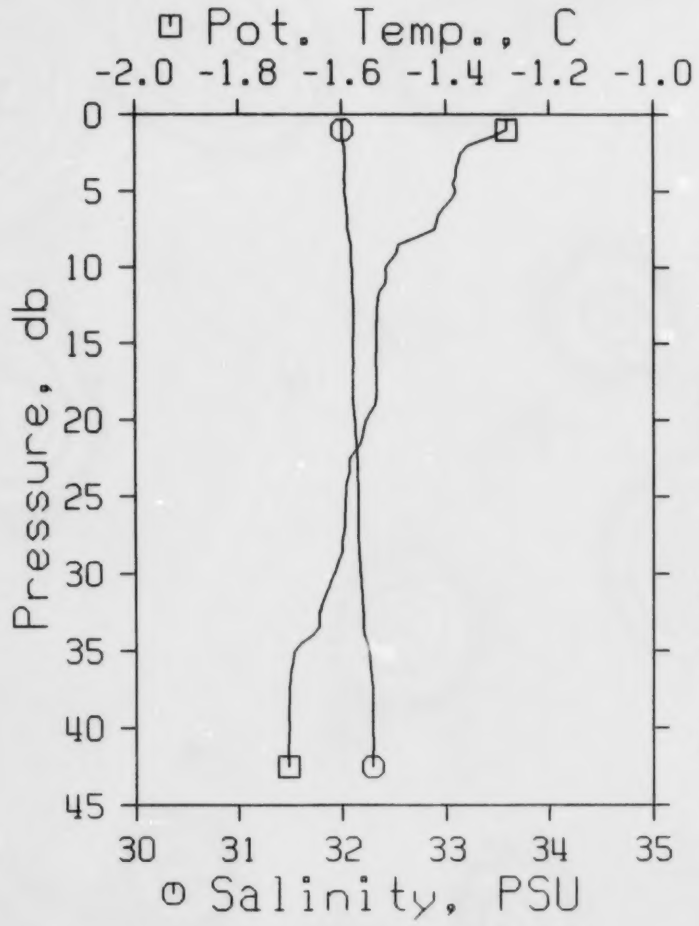
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.358	-1.358	32.025	25.78	223.2	.04	.00	1439
4	4	-1.381	-1.381	32.027	25.78	223.0	.09	.00	1439
6	6	-1.402	-1.402	32.046	25.80	221.5	.13	.00	1439
8	8	-1.456	-1.456	32.069	25.82	219.6	.18	.01	1438
10	10	-1.516	-1.516	32.095	25.84	217.4	.22	.01	1438
15	15	-1.534	-1.534	32.105	25.85	216.6	.33	.03	1438
20	20	-1.554	-1.554	32.125	25.86	215.0	.44	.04	1438
25	25	-1.592	-1.592	32.152	25.89	212.9	.55	.07	1438
30	30	-1.615	-1.615	32.173	25.90	211.2	.65	.10	1438
35	35	-1.691	-1.692	32.257	25.97	204.6	.76	.13	1438
43	42	-1.703	-1.704	32.294	26.00	201.7	.91	.19	1438

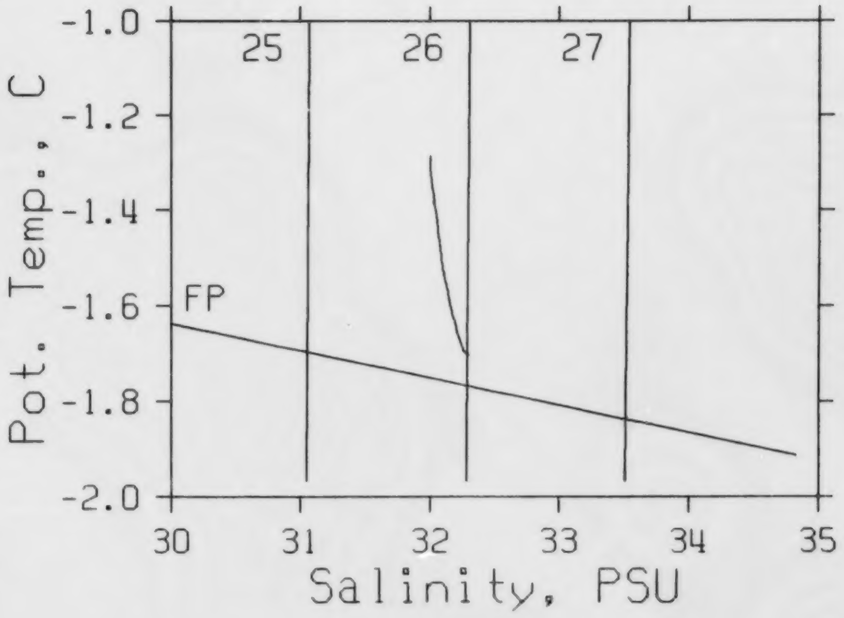




NOGAP ICEWORK 1991
STATION : BOAT
REFERENCE NO.: 91-09-041
DATE/TIME : 03/05/91 14:48 MDT
POSITION : 70-11.1N 133-38.8W

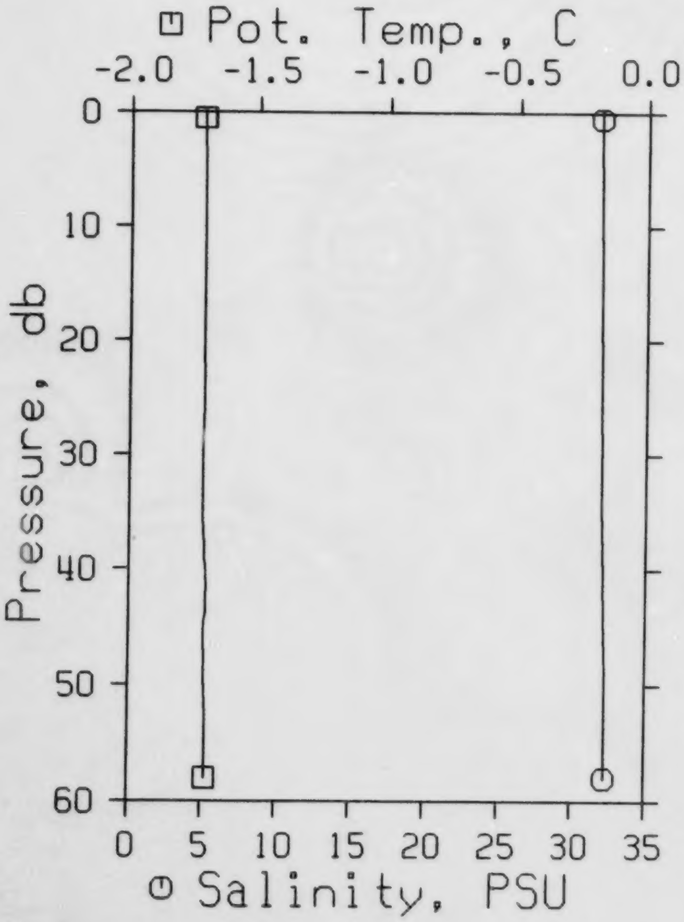
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.358	-1.358	32.025	25.78	223.2	.04	.00	1439
4	4	-1.381	-1.381	32.027	25.78	223.0	.09	.00	1439
6	6	-1.402	-1.402	32.046	25.80	221.5	.13	.00	1439
8	8	-1.456	-1.456	32.069	25.82	219.6	.18	.01	1438
10	10	-1.516	-1.516	32.095	25.84	217.4	.22	.01	1438
15	15	-1.534	-1.534	32.105	25.85	216.6	.33	.03	1438
20	20	-1.554	-1.554	32.125	25.86	215.0	.44	.04	1438
25	25	-1.592	-1.592	32.152	25.89	212.9	.55	.07	1438
30	30	-1.615	-1.615	32.173	25.90	211.2	.65	.10	1438
35	35	-1.691	-1.692	32.257	25.97	204.6	.76	.13	1438
43	42	-1.703	-1.704	32.294	26.00	201.7	.91	.19	1438

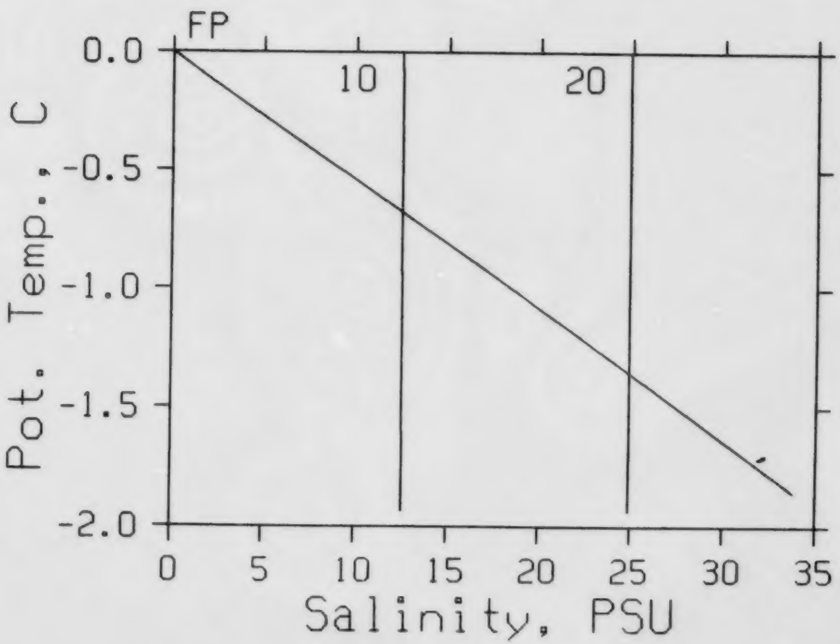




NOGAP ICEWORK 1991
STATION : C006
REFERENCE NO.: 91-09-021
DATE/TIME : 29/04/91 15:00 MDT
POSITION : 70-28.3N 133-51.5W

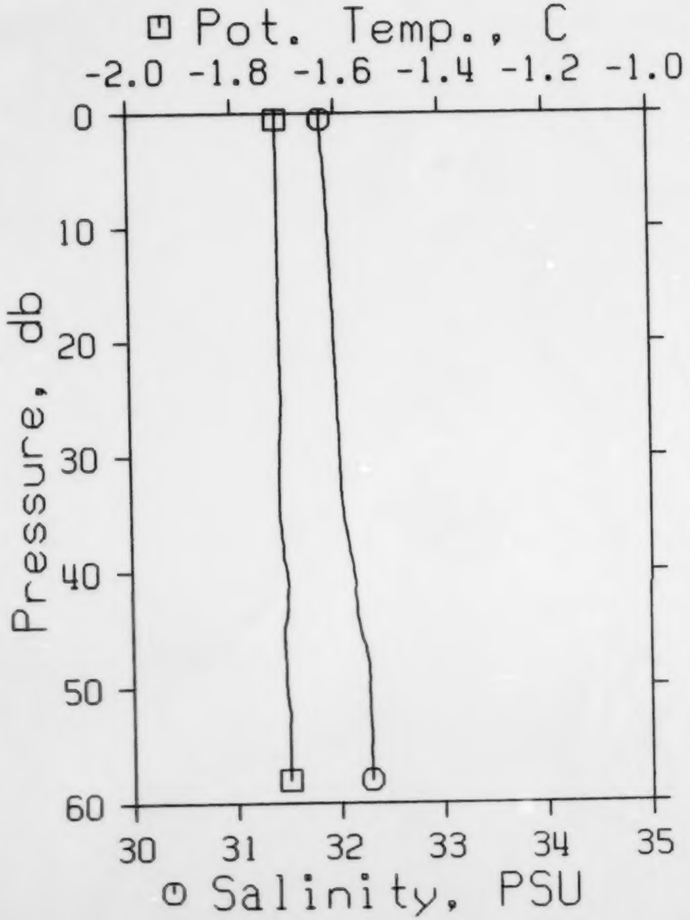
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.714	-1.714	31.868	25.66	234.6	.05	.00	1437
4	4	-1.713	-1.713	31.885	25.67	233.3	.09	.00	1437
6	6	-1.713	-1.713	31.904	25.69	231.8	.14	.00	1437
8	8	-1.713	-1.713	31.913	25.69	231.1	.19	.01	1437
10	10	-1.713	-1.713	31.922	25.70	230.4	.23	.01	1437
15	15	-1.713	-1.713	31.948	25.72	228.4	.35	.03	1437
20	20	-1.711	-1.711	31.971	25.74	226.6	.46	.05	1437
25	25	-1.709	-1.709	31.992	25.76	225.0	.57	.07	1437
30	30	-1.713	-1.713	32.012	25.78	223.4	.69	.10	1438
35	35	-1.714	-1.715	32.040	25.80	221.3	.80	.14	1438
58	57	-1.698	-1.699	32.297	26.01	201.5	1.27	.37	1438

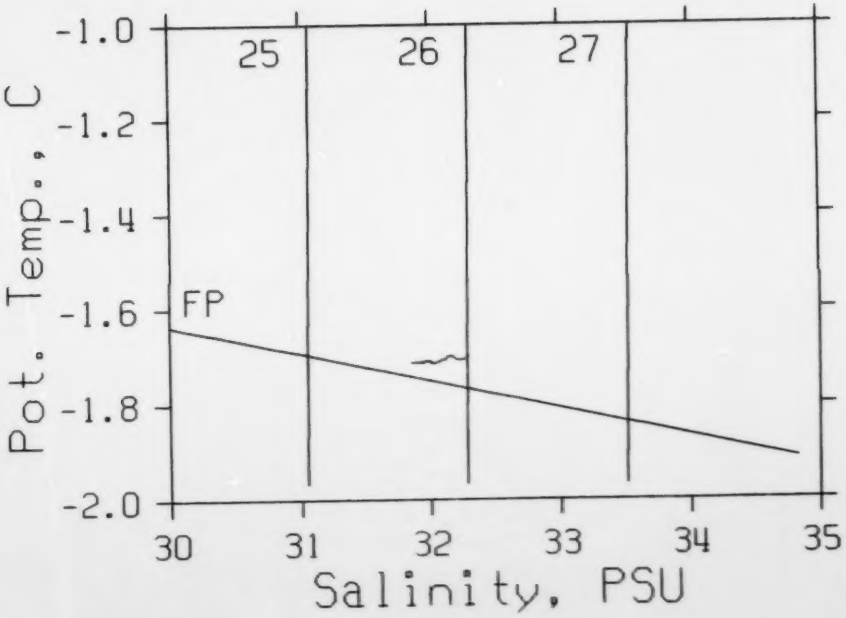




NOGAP ICEWORK 1991
STATION : C006
REFERENCE NO.: 91-09-021
DATE/TIME : 29/04/91 15:00 MDT
POSITION : 70-28.3N 133-51.5W

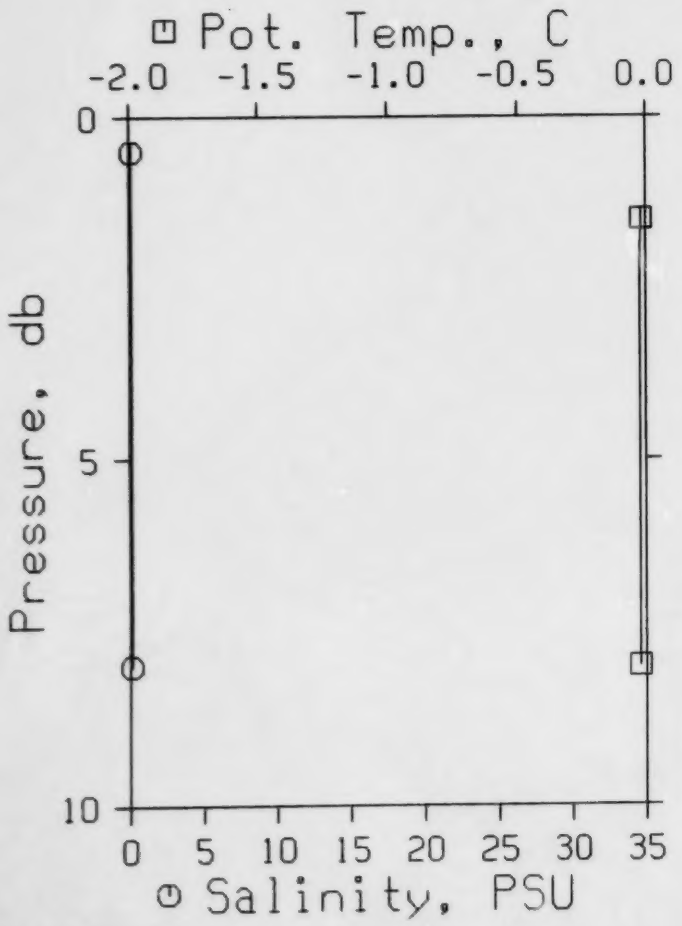
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.714	-1.714	31.868	25.66	234.6	.05	.00	1437
4	4	-1.713	-1.713	31.885	25.67	233.3	.09	.00	1437
6	6	-1.713	-1.713	31.904	25.69	231.8	.14	.00	1437
8	8	-1.713	-1.713	31.913	25.69	231.1	.19	.01	1437
10	10	-1.713	-1.713	31.922	25.70	230.4	.23	.01	1437
15	15	-1.713	-1.713	31.948	25.72	228.4	.35	.03	1437
20	20	-1.711	-1.711	31.971	25.74	226.6	.46	.05	1437
25	25	-1.709	-1.709	31.992	25.76	225.0	.57	.07	1437
30	30	-1.713	-1.713	32.012	25.78	223.4	.69	.10	1438
35	35	-1.714	-1.715	32.040	25.80	221.3	.80	.14	1438
40	40	-1.701	-1.702	32.136	25.88	213.9	.91	.18	1438
45	45	-1.706	-1.707	32.203	25.93	208.7	1.01	.23	1438
50	49	-1.703	-1.704	32.282	26.00	202.6	1.11	.28	1438
58	57	-1.698	-1.699	32.297	26.01	201.5	1.27	.37	1438

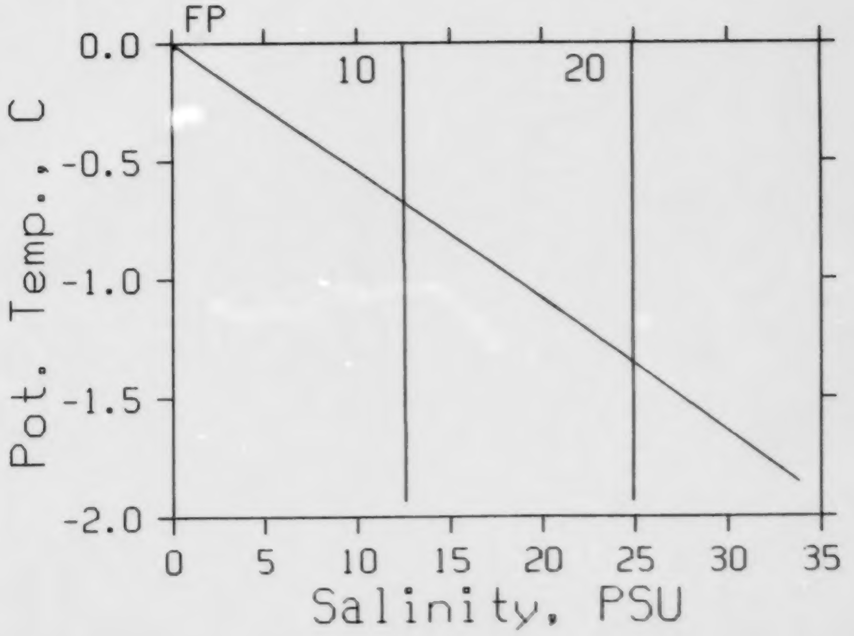




NOGAP ICEWORK 1991
STATION : CAN2
REFERENCE NO.: 91-09-034
DATE/TIME : 01/05/91 14:17 MDT
POSITION : 69-24.5N 133-49.0W

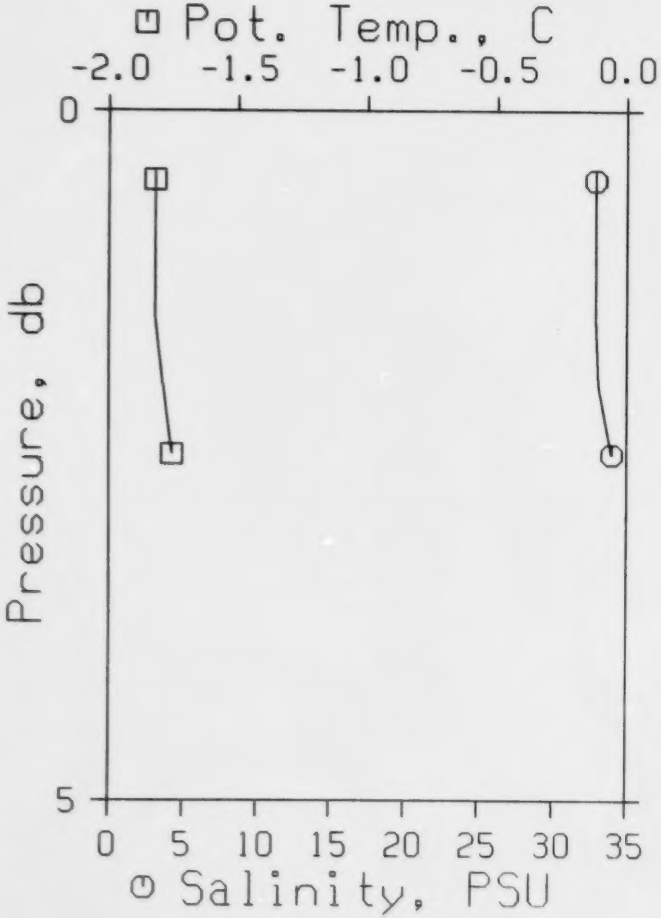
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.021	-.021	.145	-.01	2737.8	.55	.01	1403
4	4	-.022	-.022	.144	-.01	2737.8	1.09	.02	1403
6	6	-.021	-.021	.144	-.01	2737.8	1.64	.05	1403
8	8	-.021	-.021	.144	-.01	2737.8	2.19	.09	1403

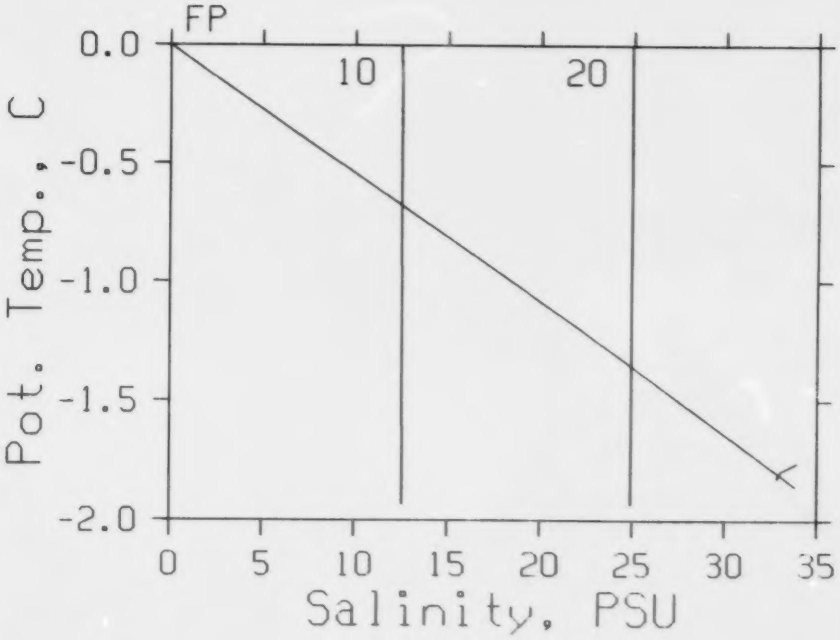




NOGAP ICEWORK 1991
STATION : CB01
REFERENCE NO.: 91-09-048
DATE/TIME : 06/04/91 15:00 MDT
POSITION : 70-31.3N 128-18.1W

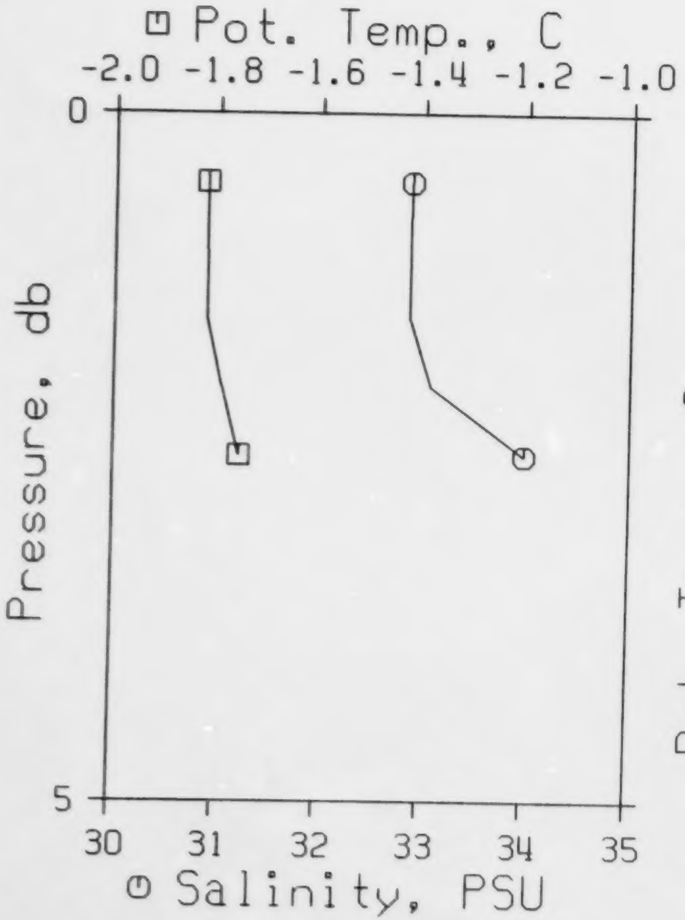
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.790	-1.790	33.082	26.65	140.7	.03	.00	1438
3	2	-1.756	-1.756	33.992	27.39	70.6	.04	.00	1440

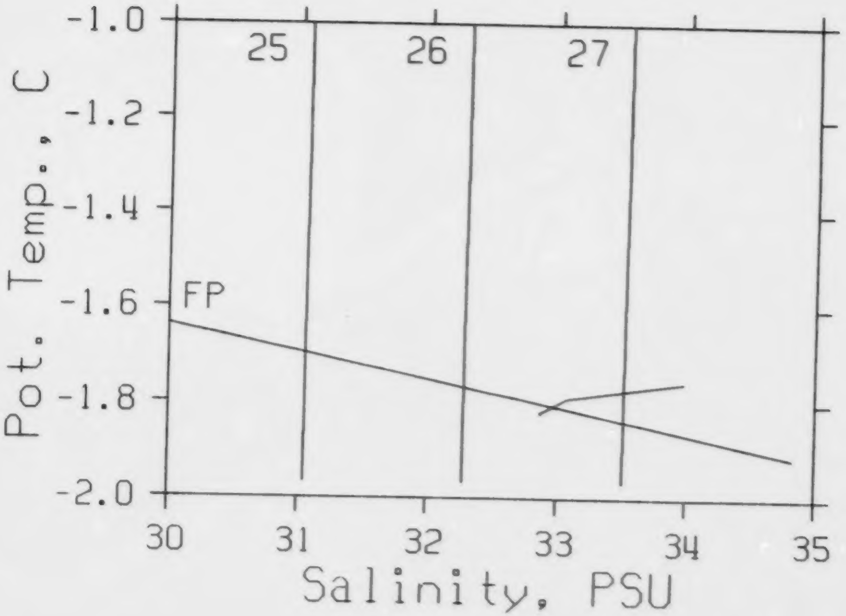




NOGAP ICEWORK 1991
STATION : CB01
REFERENCE NO.: 91-09-048
DATE/TIME : 06/04/91 15:00 MDT
POSITION : 70-31.3N 128-18.1W

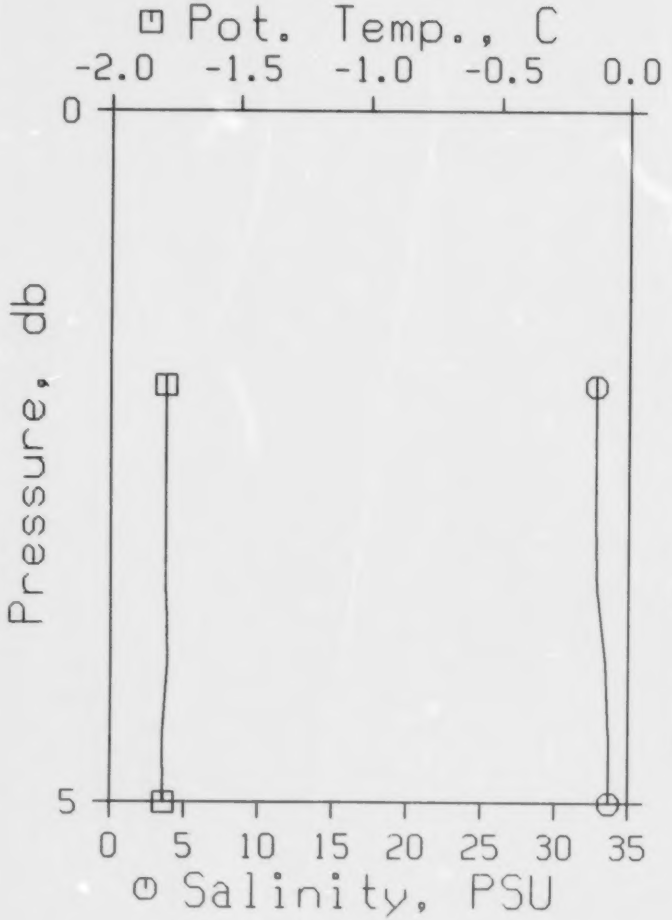
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.790	-1.790	33.082	26.65	140.7	.03	.00	1438
3	2	-1.756	-1.756	33.992	27.39	70.6	.04	.00	1440

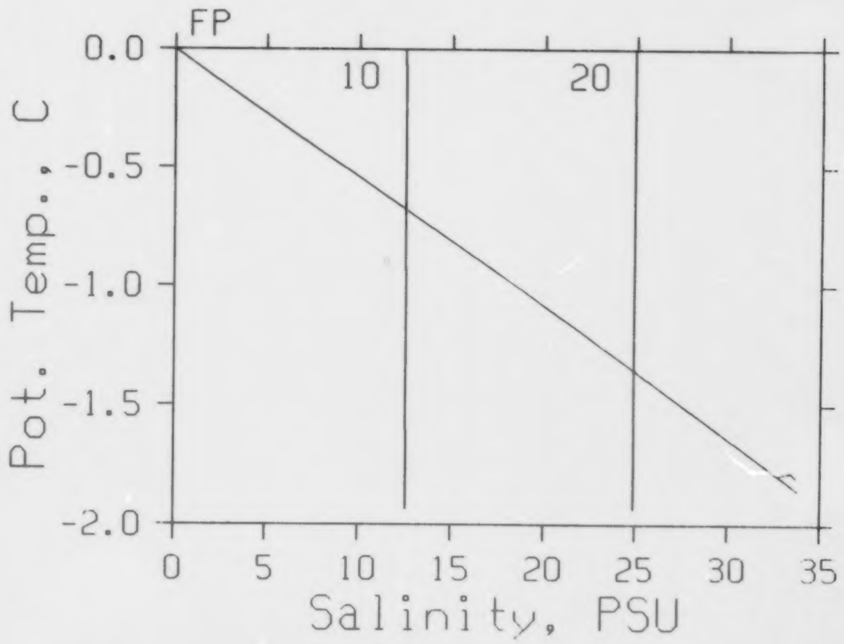




NOGAP ICEWORK 1991
STATION : CB02
REFERENCE NO.: 91-09-050
DATE/TIME : 06/04/91 15:49 MDT
POSITION : 70-30.3N 128-14.9W

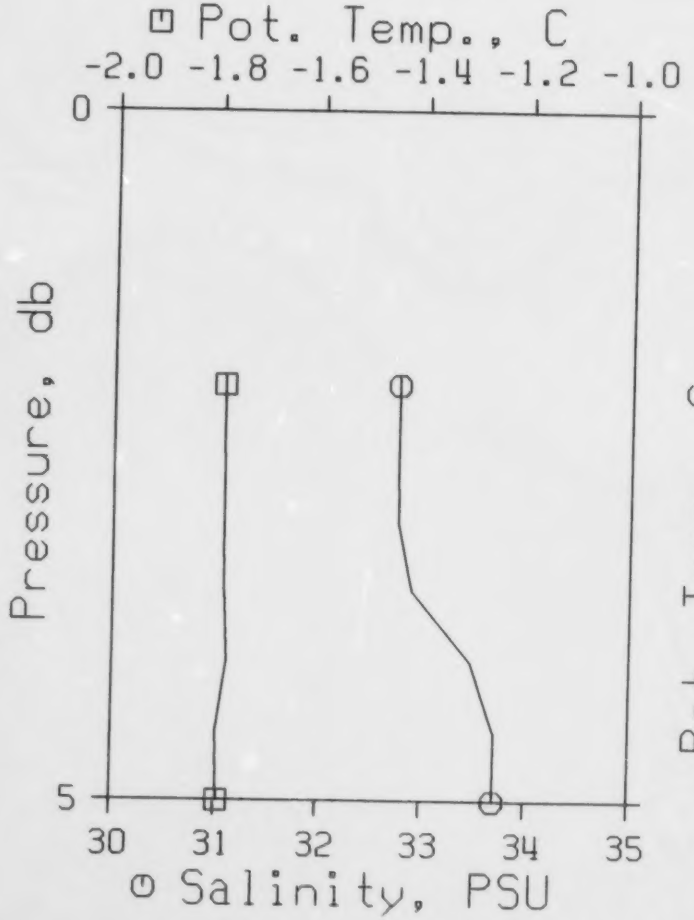
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.788	-1.788	32.753	26.38	166.1	.03	.00	1438
4	4	-1.779	-1.779	33.471	26.96	110.7	.06	.00	1439
5	5	-1.794	-1.794	33.700	27.15	93.0	.07	.00	1439

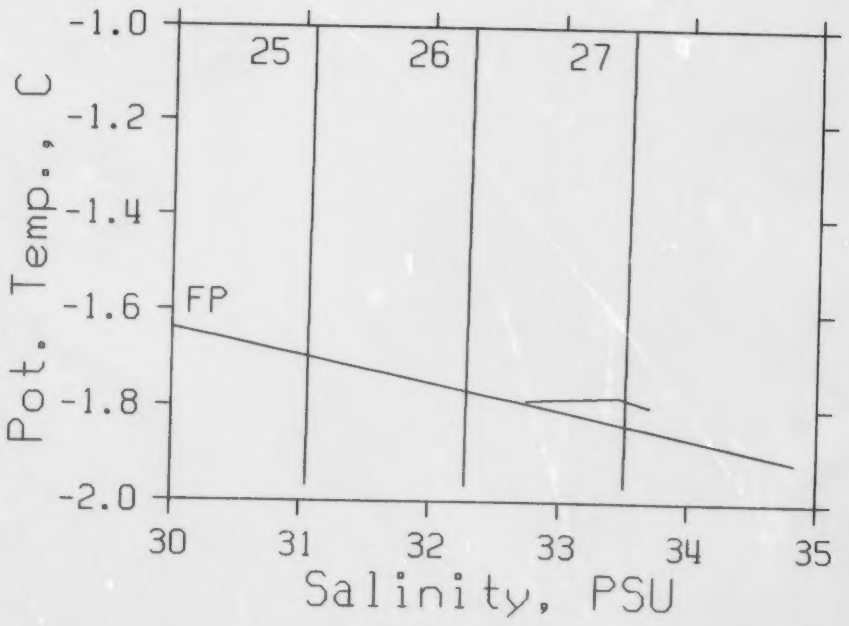




NOGAP ICEWORK 1991
STATION : CB02
REFERENCE NO.: 91-09-050
DATE/TIME : 06/04/91 15:49 MDT
POSITION : 70-30.3N 128-14.9W

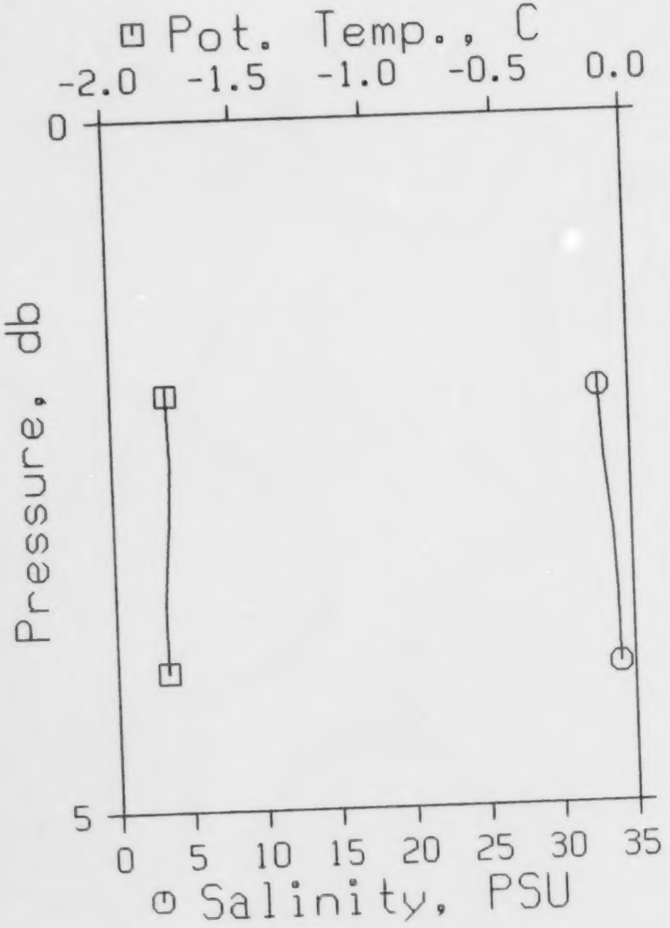
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.788	-1.788	32.753	26.38	166.1	.03	.00	1438
4	4	-1.779	-1.779	33.471	26.96	110.7	.06	.00	1439
5	5	-1.794	-1.794	33.700	27.15	93.0	.07	.00	1439

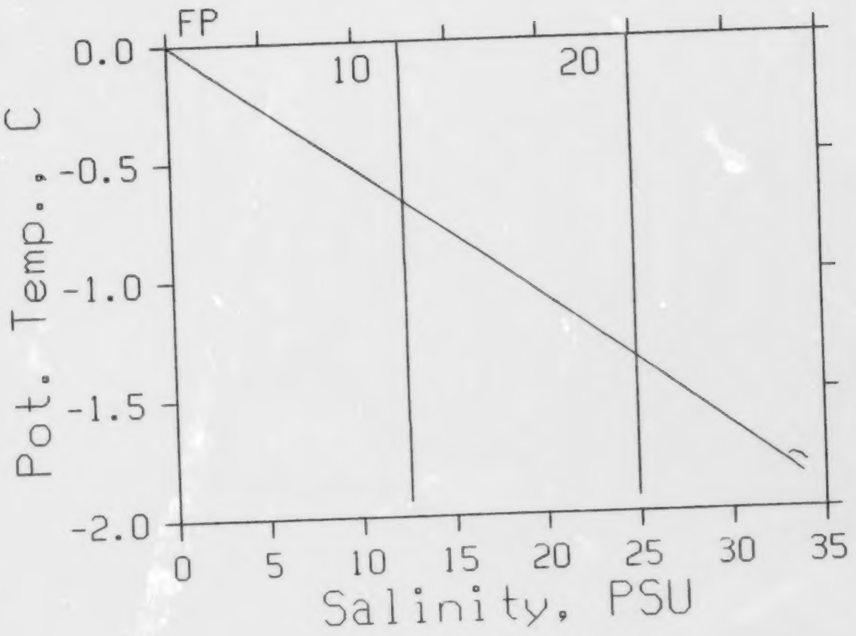




NOGAP ICEWORK 1991
STATION : CB03
REFERENCE NO.: 91-09-051
DATE/TIME : 06/04/91 16:12 MDT
POSITION : 70-29.7N 128-13.3W

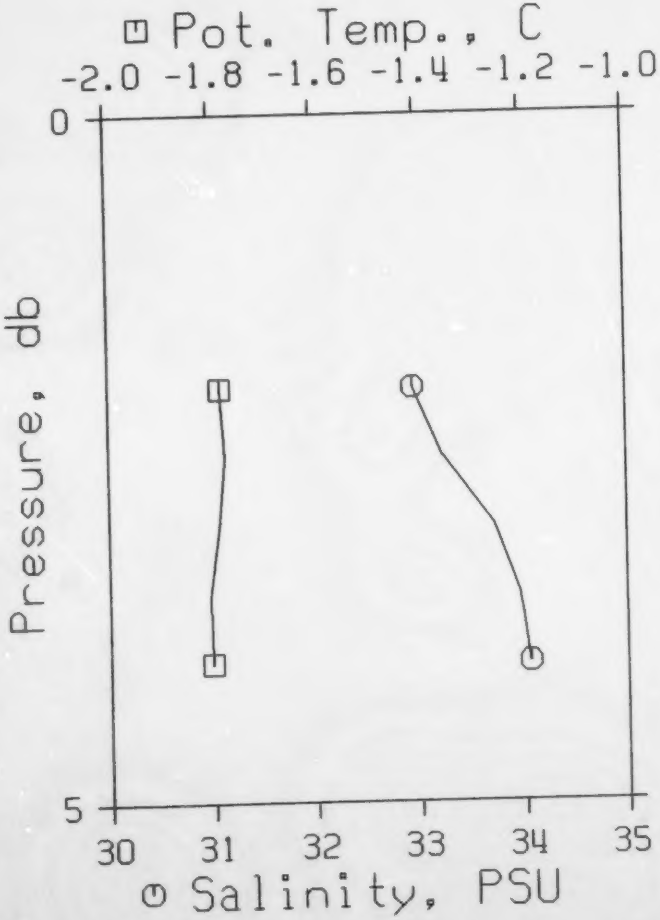
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.783	-1.783	32.952	26.54	150.7	.03	.00	1438
4	4	-1.802	-1.802	34.053	27.44	65.8	.05	.00	1439

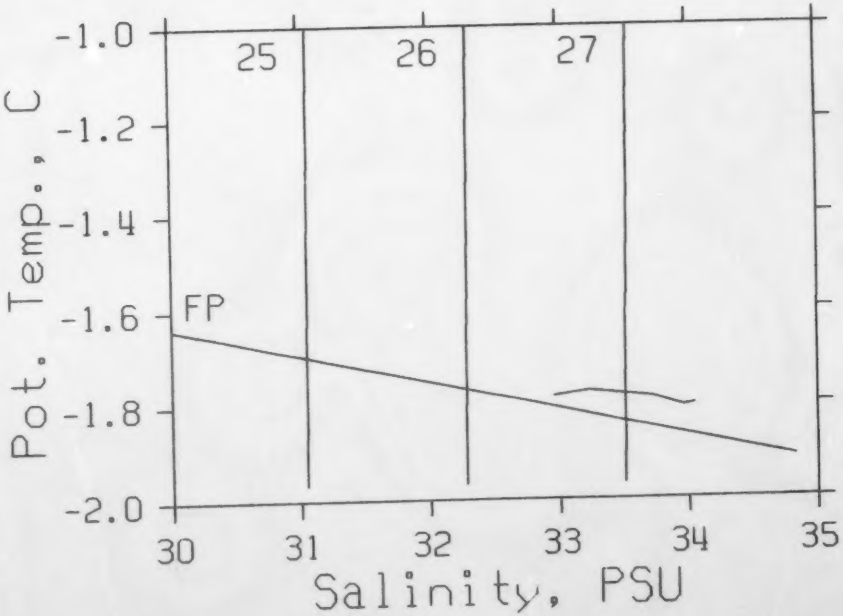




NOGAP ICEWORK 1991
STATION : CB03
REFERENCE NO.: 91-09-051
DATE/TIME : 06/04/91 16:12 MDT
POSITION : 70-29.7N 128-13.3W

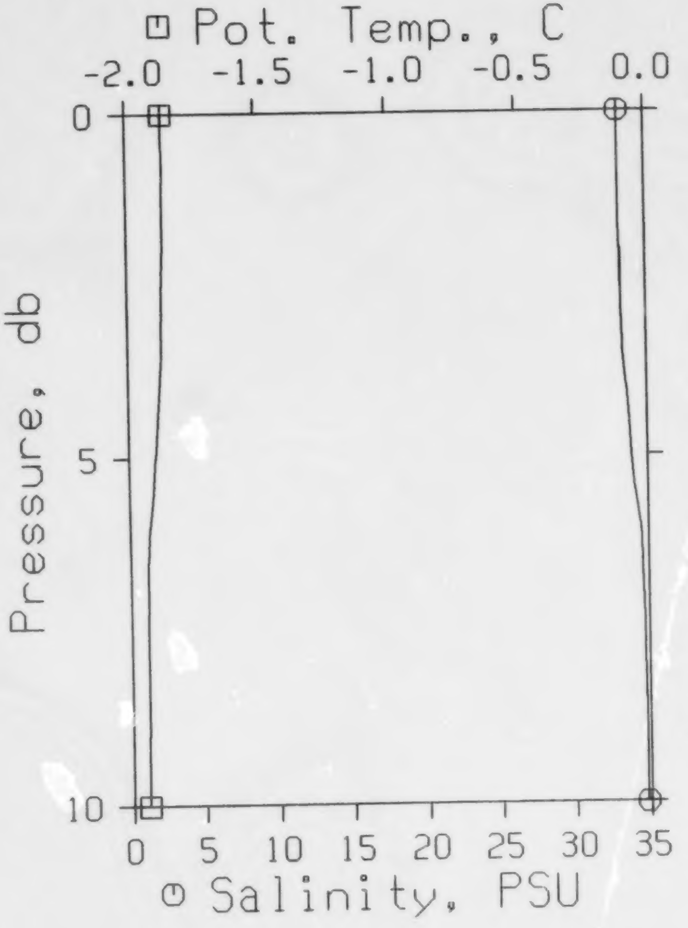
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.783	-1.783	32.952	26.54	150.7	.03	.00	1438
4	4	-1.802	-1.802	34.053	27.44	65.8	.05	.00	1439

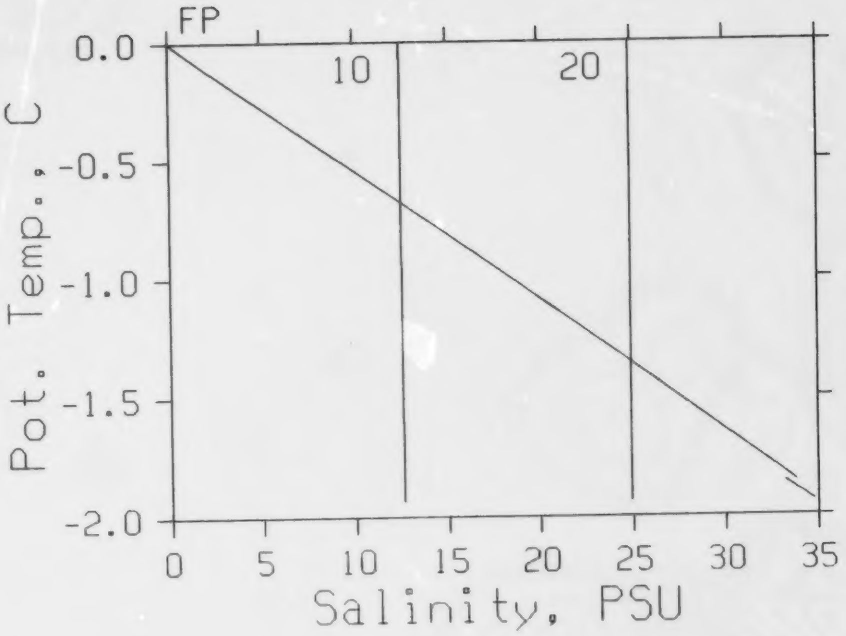




NOGAP ICEWORK 1991
STATION : CB04
REFERENCE NO.: 91-09-052
DATE/TIME : 06/04/91 18:23 MDT
POSITION : 70-29.7N 128-28.4W

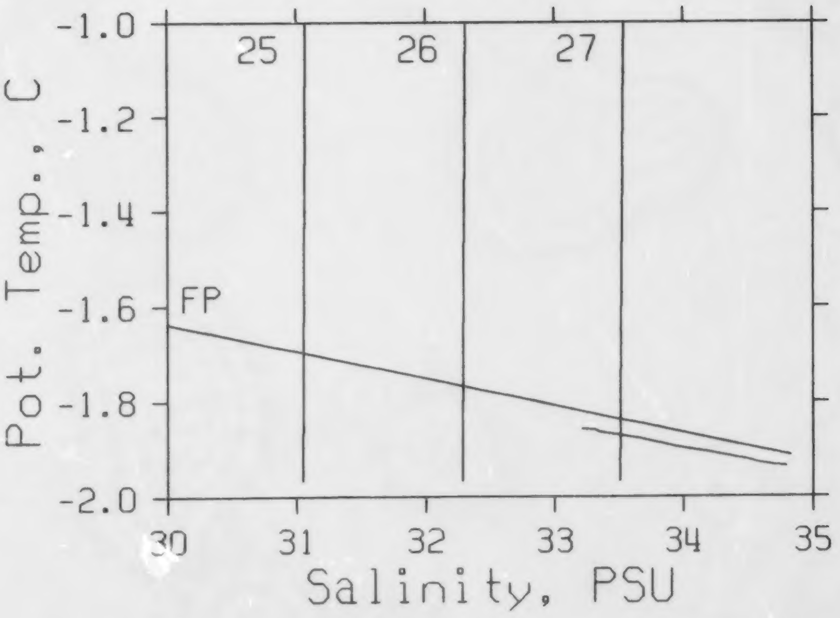
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.859	-1.859	33.316	26.84	122.5	.03	.00	1438
4	4	-1.877	-1.877	33.656	27.12	96.2	.05	.00	1439
6	6	-1.922	-1.922	34.501	27.80	31.0	.06	.00	1440
8	8	-1.934	-1.934	34.731	27.99	13.3	.07	.00	1440
10	10	-1.936	-1.936	34.806	28.05	7.5	.07	.00	1440





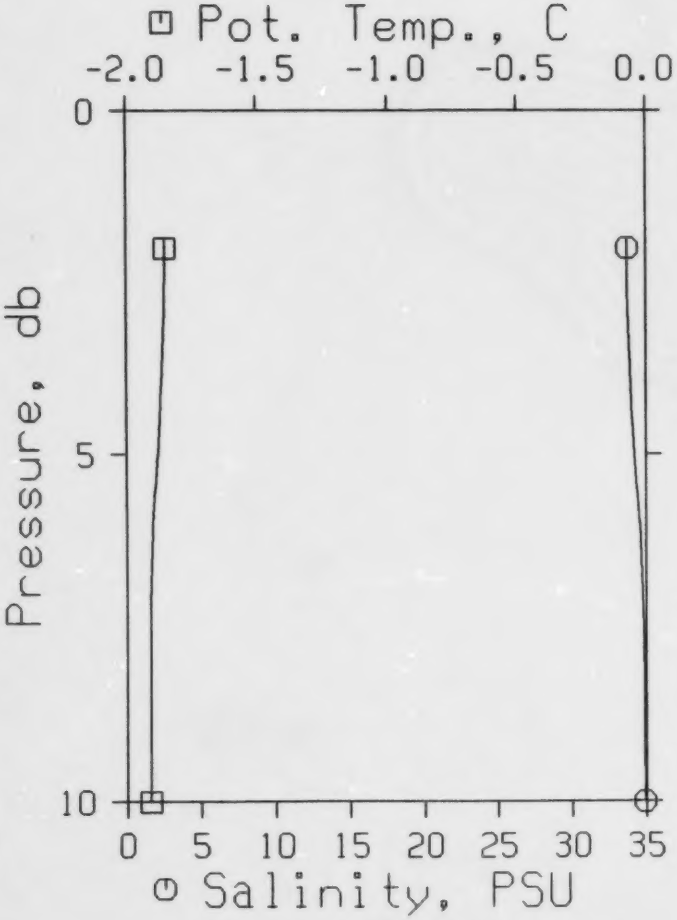
NOGAP ICEWORK 1991
STATION : CB04
REFERENCE NO.: 91-09-052
DATE/TIME : 06/04/91 18:23 MDT
POSITION : 70-29.7N 128-28.4W

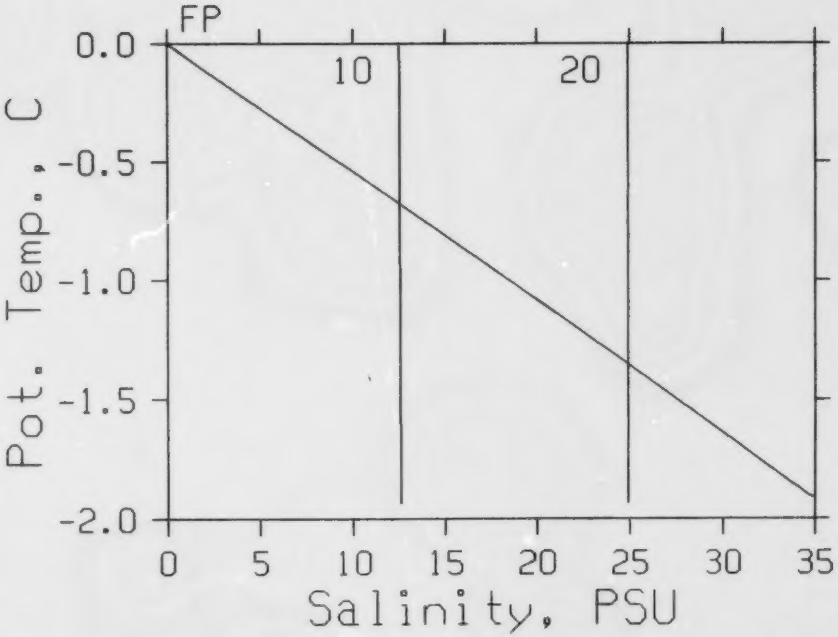
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.859	-1.859	33.316	26.84	122.5	.03	.00	1438
4	4	-1.877	-1.877	33.656	27.12	96.2	.05	.00	1439
6	6	-1.922	-1.922	34.501	27.80	31.0	.06	.00	1440
8	8	-1.934	-1.934	34.731	27.99	13.3	.07	.00	1440
10	10	-1.936	-1.936	34.806	28.05	7.5	.07	.00	1440



NOGAP ICEWORK 1991
STATION : CB05
REFERENCE NO.: 91-09-053
DATE/TIME : 06/04/91 19:23 MDT
POSITION : 70-29.7N 128-25.4W

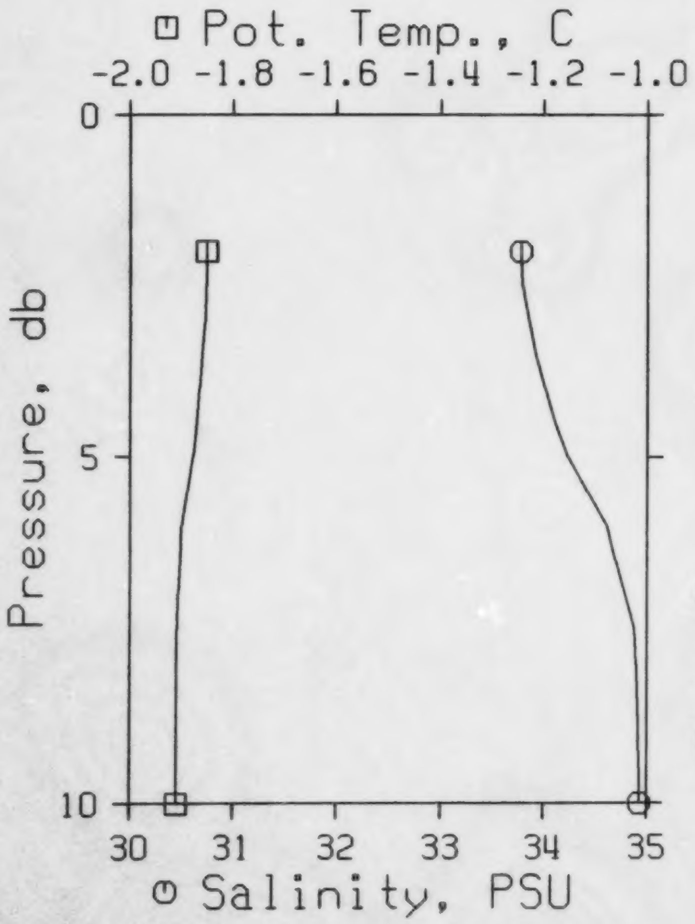
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.851	-1.851	33.777	27.21	87.0	.02	.00	1439
4	4	-1.864	-1.864	34.012	27.41	68.8	.03	.00	1439
6	6	-1.898	-1.898	34.613	27.90	22.4	.04	.00	1440
8	8	-1.908	-1.908	34.904	28.13	.0	.05	.00	1440
10	10	-1.908	-1.908	34.928	28.15	-1.8	.04	.00	1440
11	10	-1.907	-1.907	34.927	28.15	-1.8	.04	.00	1440

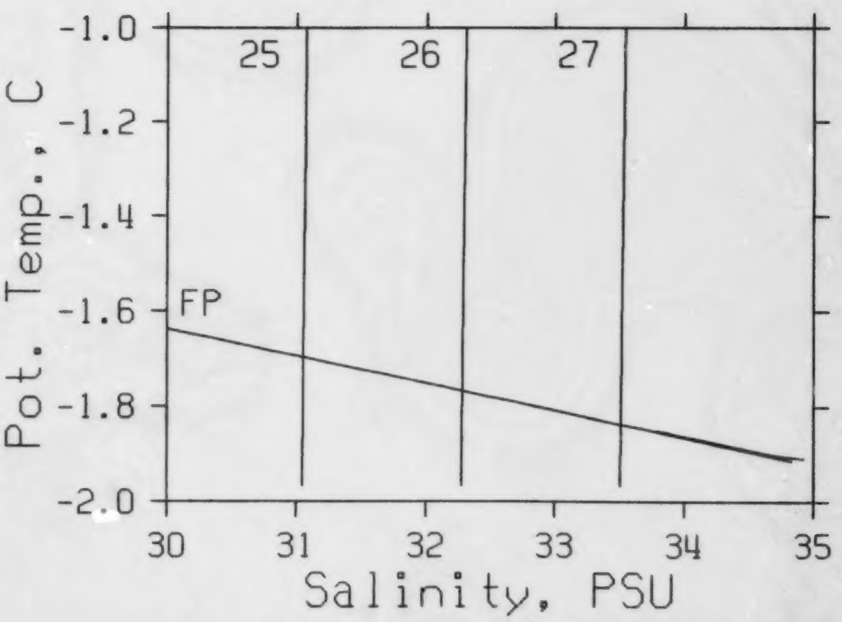




NOGAP ICEWORK 1991
STATION : CB05
REFERENCE NO.: 91-09-053
DATE/TIME : 06/04/91 19:23 MDT
POSITION : 70-29.7N 128-25.4W

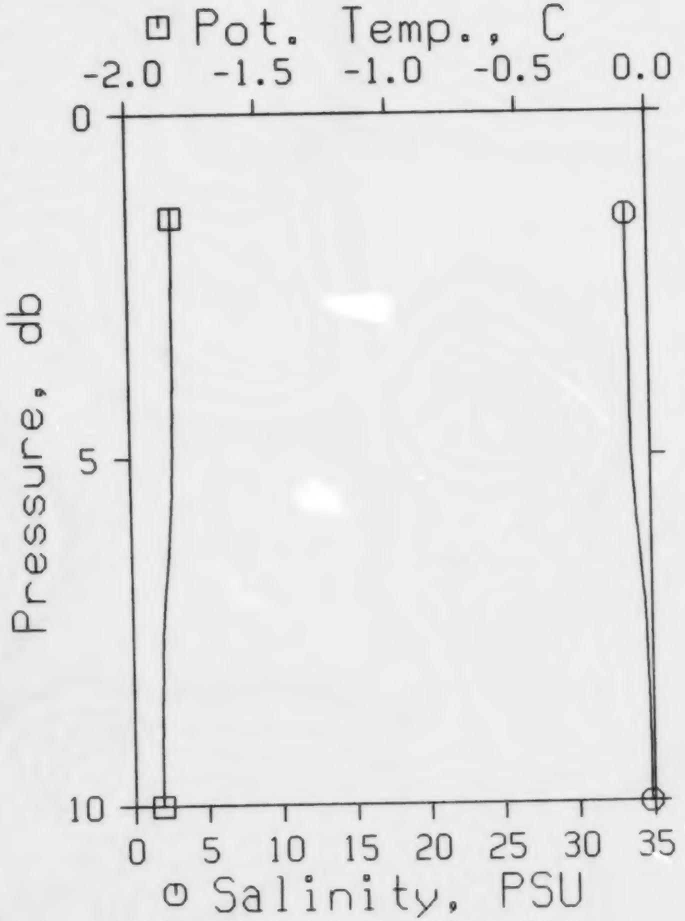
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.851	-1.851	33.777	27.21	87.0	.02	.00	1439
4	4	-1.864	-1.864	34.012	27.41	68.8	.03	.00	1439
6	6	-1.898	-1.898	34.613	27.90	22.4	.04	.00	1440
8	8	-1.908	-1.908	34.904	28.13	.0	.05	.00	1440
10	10	-1.908	-1.908	34.928	28.15	-1.8	.04	.00	1440
11	10	-1.907	-1.907	34.927	28.15	-1.8	.04	.00	1440

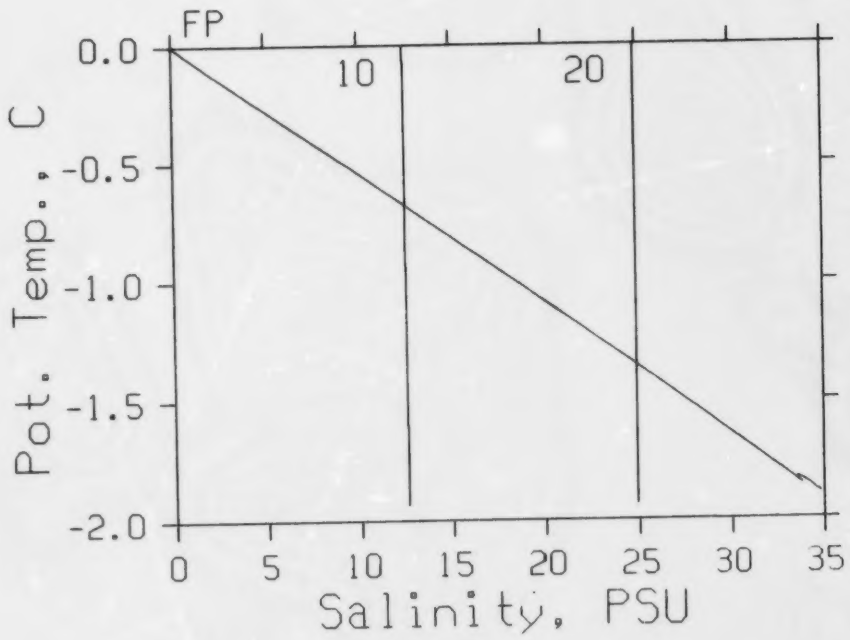




NOGAP ICEWORK 1991
STATION : CB06
REFERENCE NO.: 91-09-054
DATE/TIME : 06/04/91 20:01 MDT
POSITION : 70-30.0N 128-21.1W

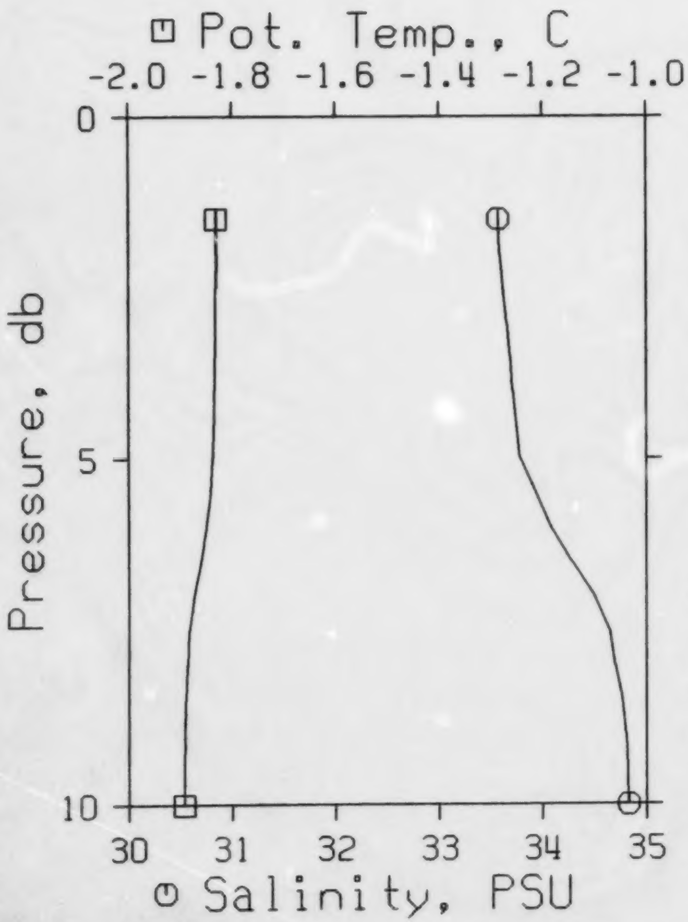
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.829	-1.829	33.592	27.06	101.3	.02	.00	1439
4	4	-1.833	-1.833	33.712	27.16	92.0	.04	.00	1439
6	6	-1.849	-1.849	34.083	27.46	63.4	.06	.00	1439
8	8	-1.885	-1.885	34.701	27.97	15.7	.06	.00	1440
10	10	-1.891	-1.891	34.831	28.07	5.7	.06	.00	1440
11	10	-1.892	-1.892	34.843	28.08	4.8	.07	.00	1440

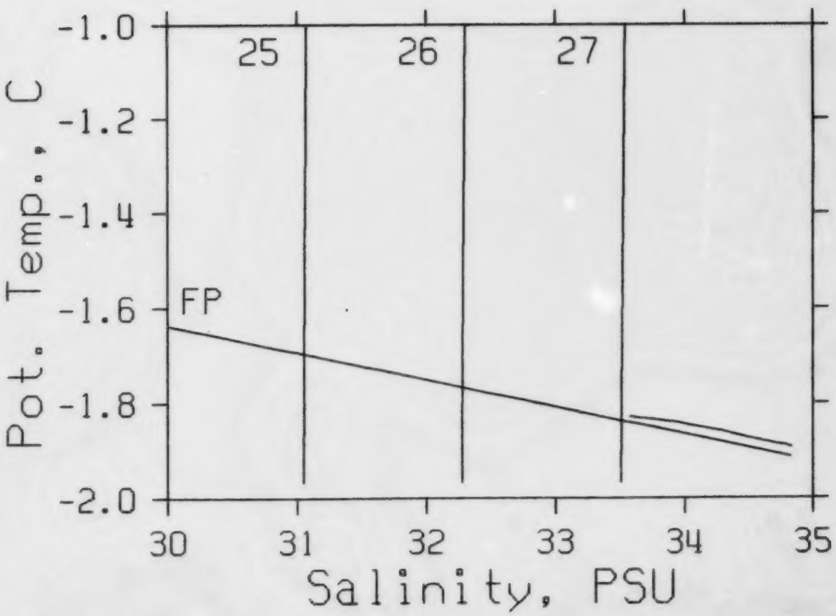




NOGAP ICEWORK 1991
STATION : CB06
REFERENCE NO.: 91-09-054
DATE/TIME : 06/04/91 20:01 MDT
POSITION : 70-30.0N 128-21.1W

PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.829	-1.829	33.592	27.06	101.3	.02	.00	1439
4	4	-1.833	-1.833	33.712	27.16	92.0	.04	.00	1439
6	6	-1.849	-1.849	34.083	27.46	63.4	.06	.00	1439
8	8	-1.885	-1.885	34.701	27.97	15.7	.06	.00	1440
10	10	-1.891	-1.891	34.831	28.07	5.7	.06	.00	1440
11	10	-1.892	-1.892	34.843	28.08	4.8	.07	.00	1440





NOGAP ICEWORK 1991

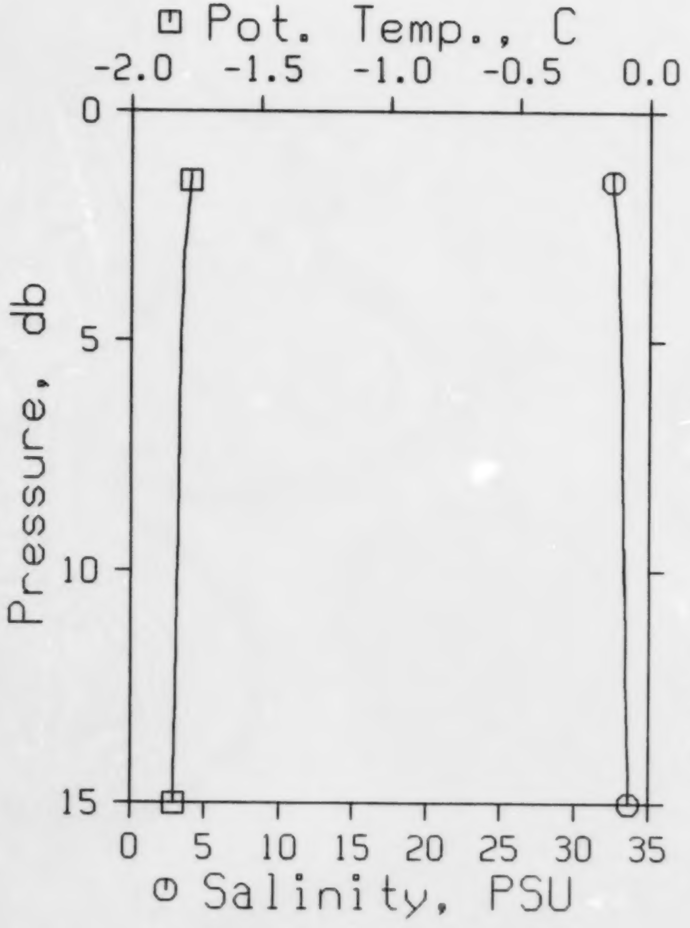
STATION : CB07

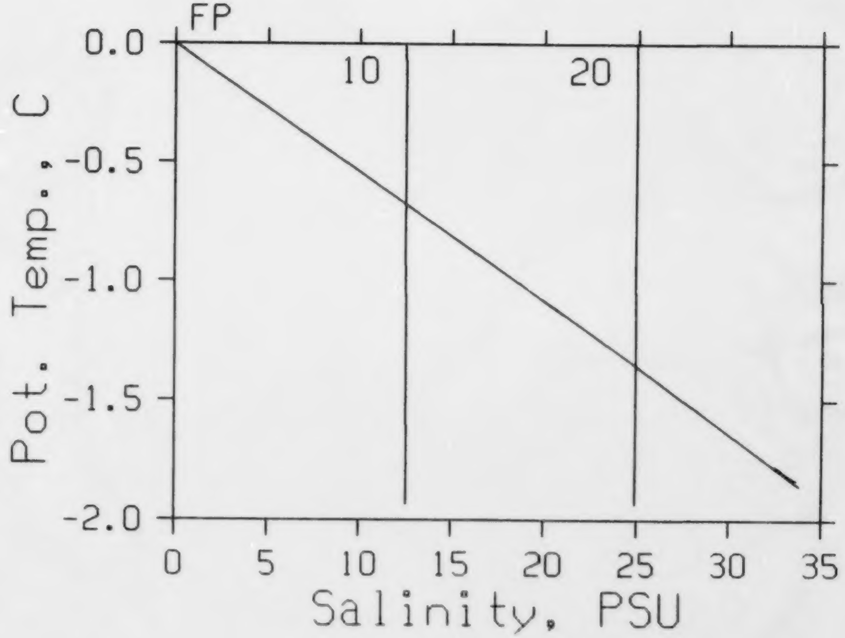
REFERENCE NO.: 91-09-055

DATE/TIME : 01/01/80 00:08 MDT

POSITION : 70-38.6N 128-18.0W

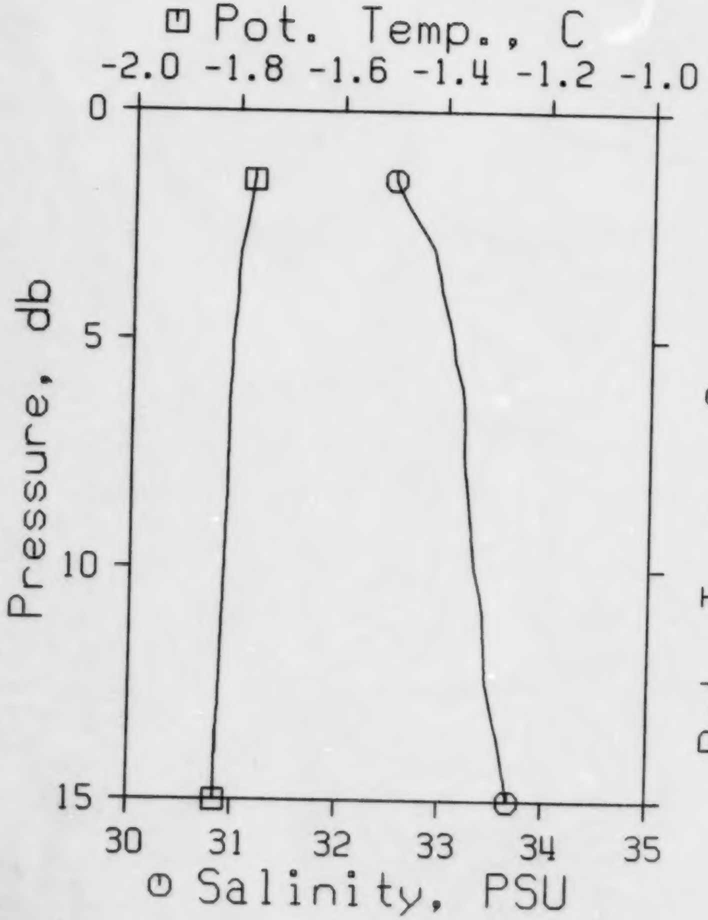
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.777	-1.777	32.607	26.26	177.4	.04	.00	1438
4	4	-1.799	-1.799	32.975	26.56	148.9	.07	.00	1438
6	6	-1.811	-1.811	33.178	26.73	133.3	.10	.00	1438
8	8	-1.814	-1.814	33.232	26.77	129.1	.12	.00	1438
10	10	-1.818	-1.818	33.322	26.84	122.1	.15	.01	1438
15	15	-1.831	-1.831	33.674	27.13	95.0	.20	.01	1439

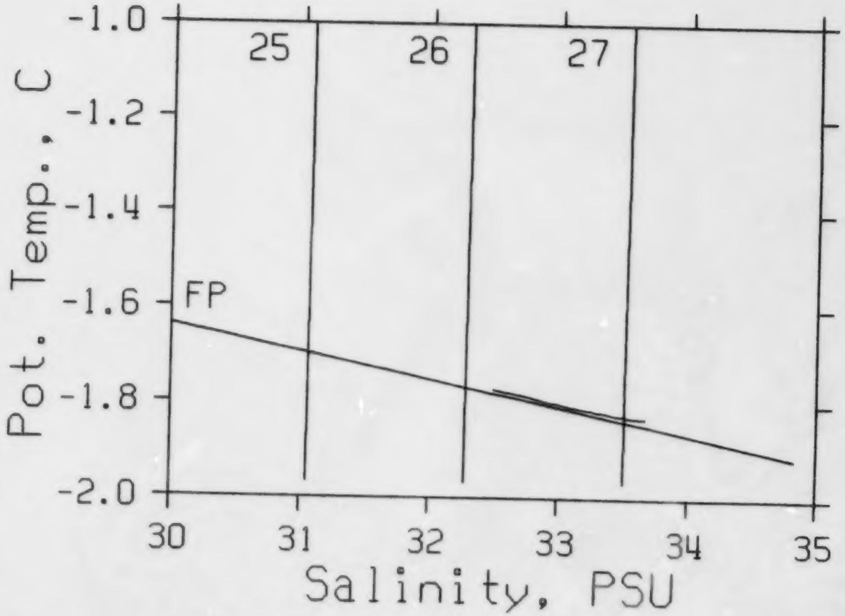




NOGAP ICEWORK 1991
STATION : CB07
REFERENCE NO.: 91-09-055
DATE/TIME : 01/01/80 00:08 MDT
POSITION : 70-38.6N 128-18.0W

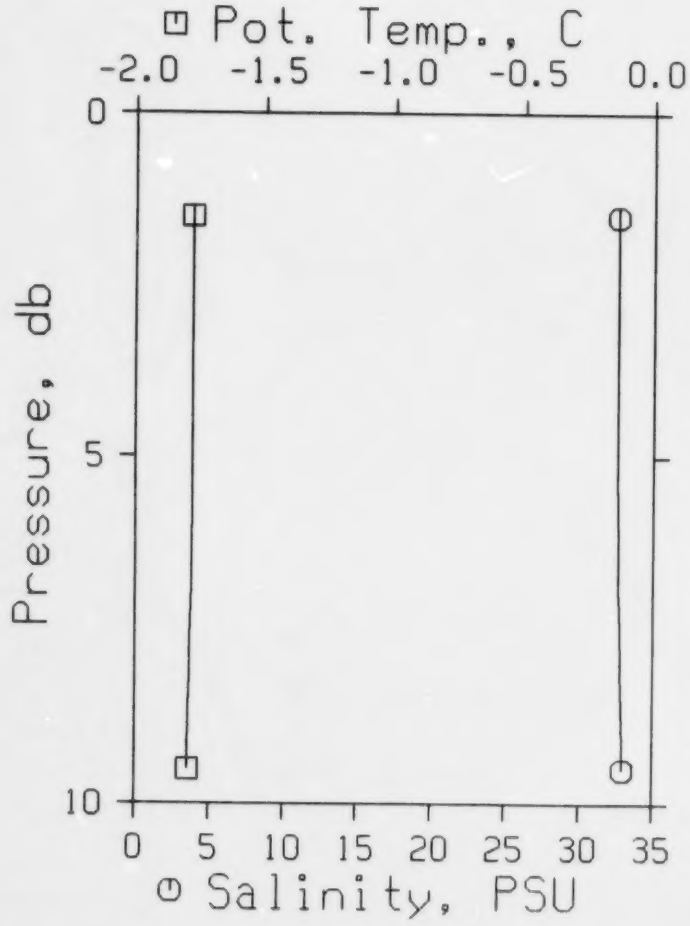
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.777	-1.777	32.607	26.26	177.4	.04	.00	1438
4	4	-1.799	-1.799	32.975	26.56	148.9	.07	.00	1438
6	6	-1.811	-1.811	33.178	26.73	133.3	.10	.00	1438
8	8	-1.814	-1.814	33.232	26.77	129.1	.12	.00	1438
10	10	-1.818	-1.818	33.322	26.84	122.1	.15	.01	1438
15	15	-1.831	-1.831	33.674	27.13	95.0	.20	.01	1439

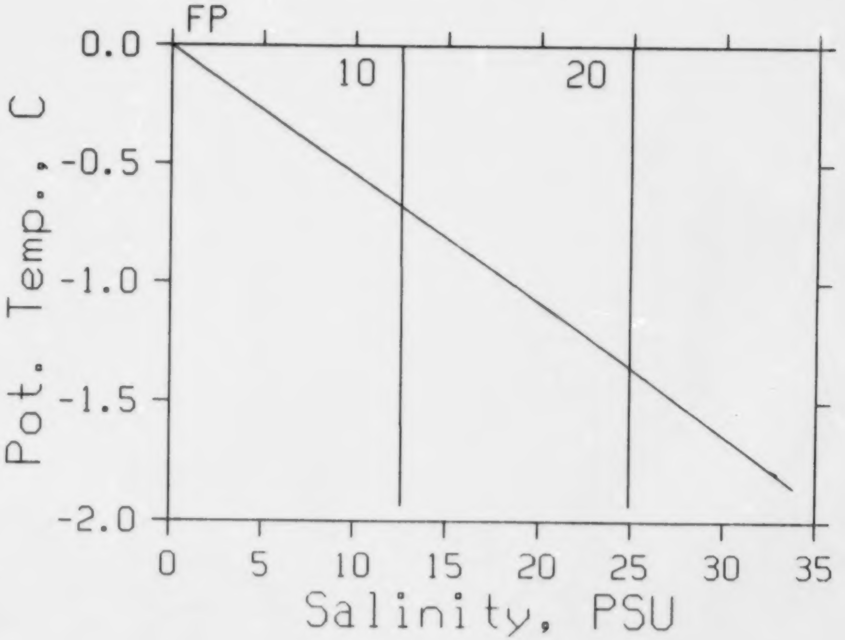




NOGAP ICEWORK 1991
STATION : CB08
REFERENCE NO.: 91-09-056
DATE/TIME : 06/05/91 14:30 MDT
POSITION : 70-38.6N 128-15.9W

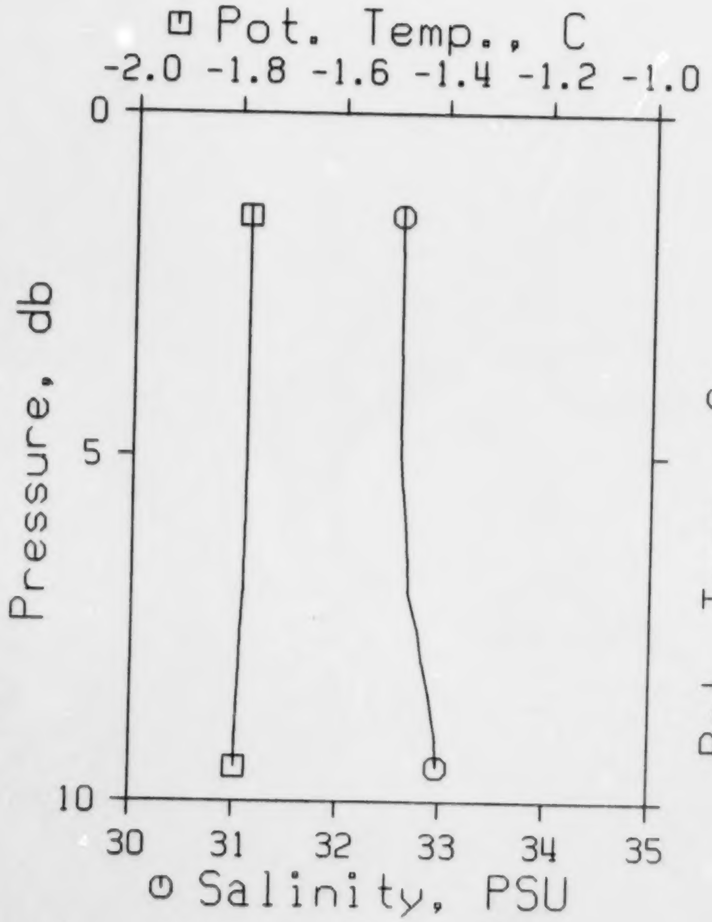
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.780	-1.780	32.573	26.23	180.0	.04	.00	1438
4	4	-1.781	-1.781	32.579	26.24	179.5	.07	.00	1438
6	6	-1.782	-1.782	32.644	26.29	174.5	.11	.00	1438
8	8	-1.790	-1.790	32.818	26.43	161.1	.14	.01	1438
10	9	-1.796	-1.796	32.967	26.55	149.6	.16	.01	1438

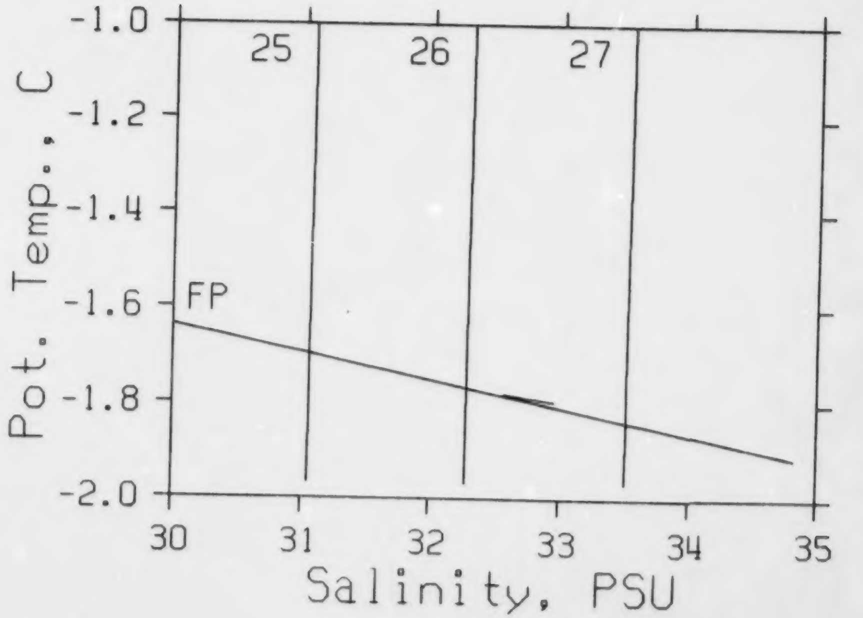




NOGAP ICEWORK 1991
STATION : CB08
REFERENCE NO.: 91-09-056
DATE/TIME : 06/05/91 14:30 MDT
POSITION : 70-38.6N 128-15.9W

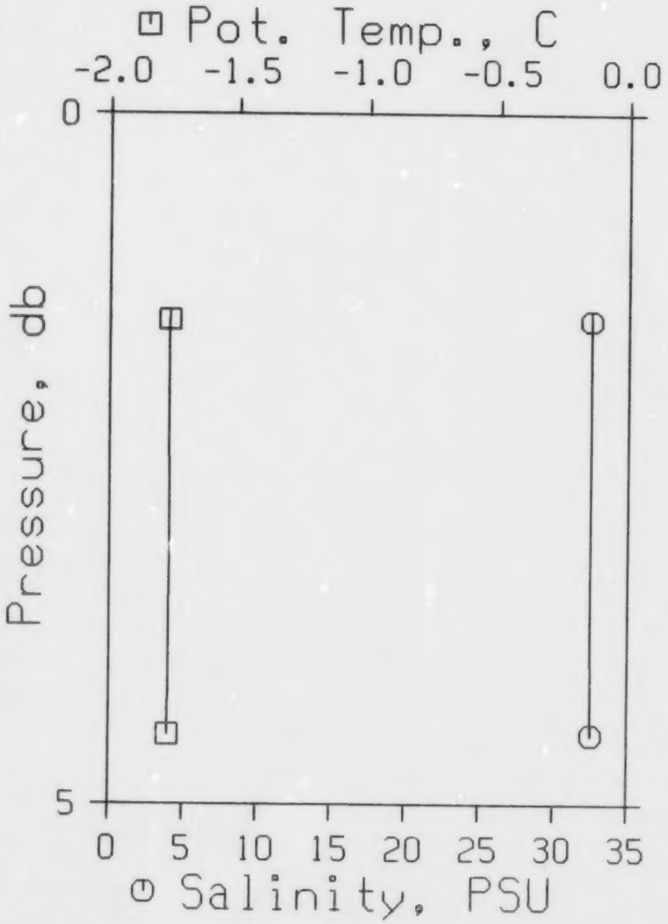
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.780	-1.780	32.573	26.23	180.0	.04	.00	1438
4	4	-1.781	-1.781	32.579	26.24	179.5	.07	.00	1438
6	6	-1.782	-1.782	32.644	26.29	174.5	.11	.00	1438
8	8	-1.790	-1.790	32.818	26.43	161.1	.14	.01	1438
10	9	-1.796	-1.796	32.967	26.55	149.6	.16	.01	1438

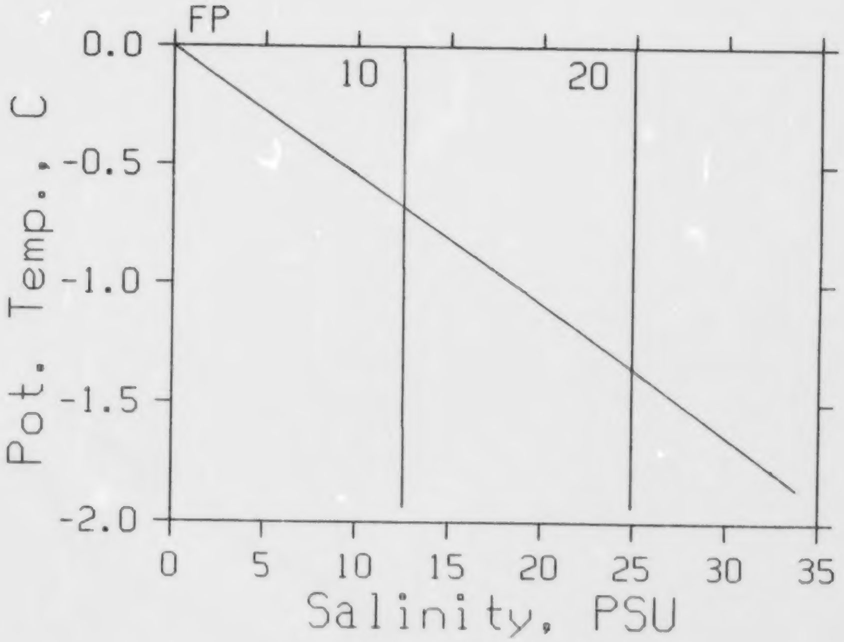




NOGAP ICEWORK 1991
STATION : CB09
REFERENCE NO.: 91-09-057
DATE/TIME : 06/05/80 14:56 MDT
POSITION : 70-38.4N 128-15.9W

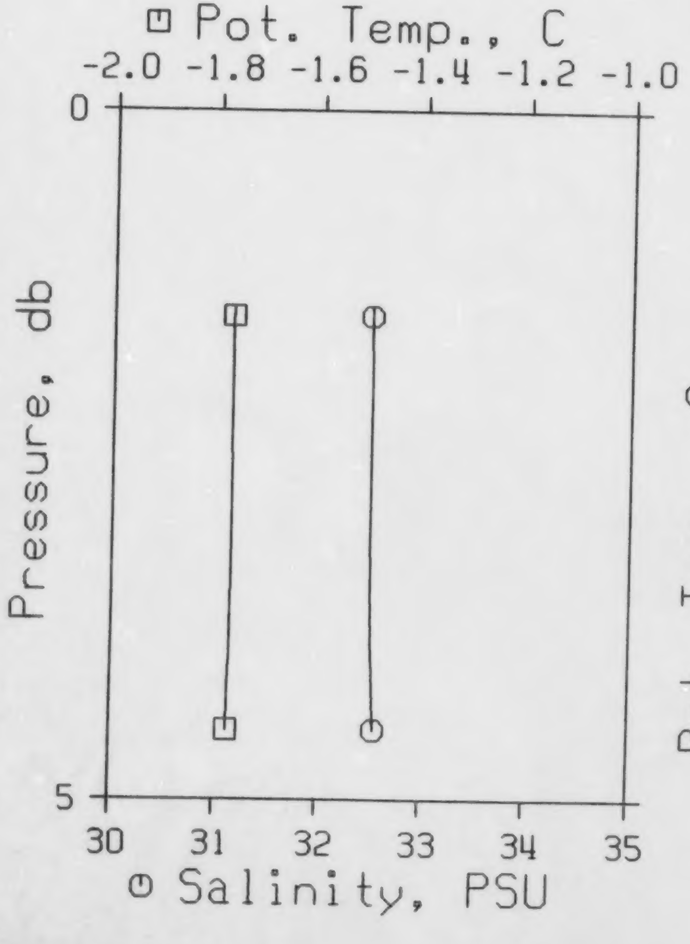
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.772	-1.772	32.499	26.17	185.7	.04	.00	1437
4	4	-1.772	-1.772	32.525	26.19	183.7	.07	.00	1438
5	4	-1.775	-1.775	32.553	26.22	181.6	.08	.00	1438

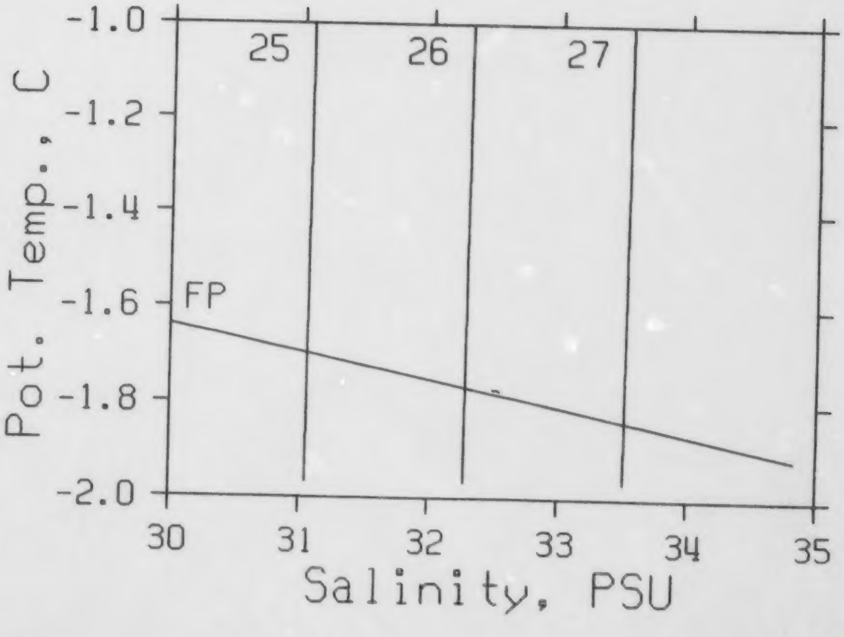




NOGAP ICEWORK 1991
STATION : CB09
REFERENCE NO.: 91-09-057
DATE/TIME : 06/05/80 14:56 MDT
POSITION : 70-38.4N 128-15.9W

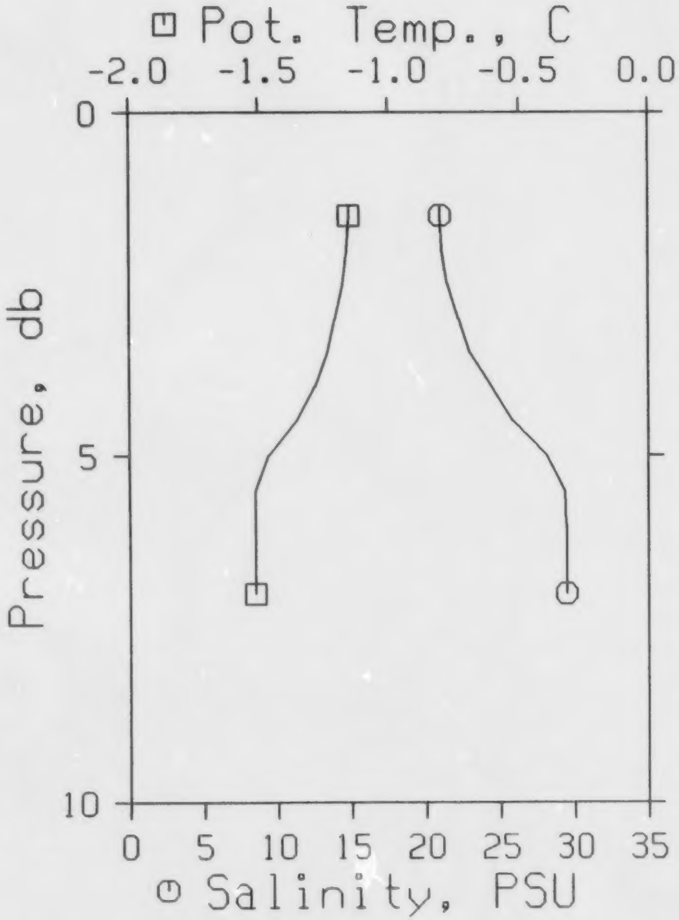
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.772	-1.772	32.499	26.17	185.7	.04	.00	1437
4	4	-1.772	-1.772	32.525	26.19	183.7	.07	.00	1438
5	4	-1.775	-1.775	32.553	26.22	181.6	.08	.00	1438

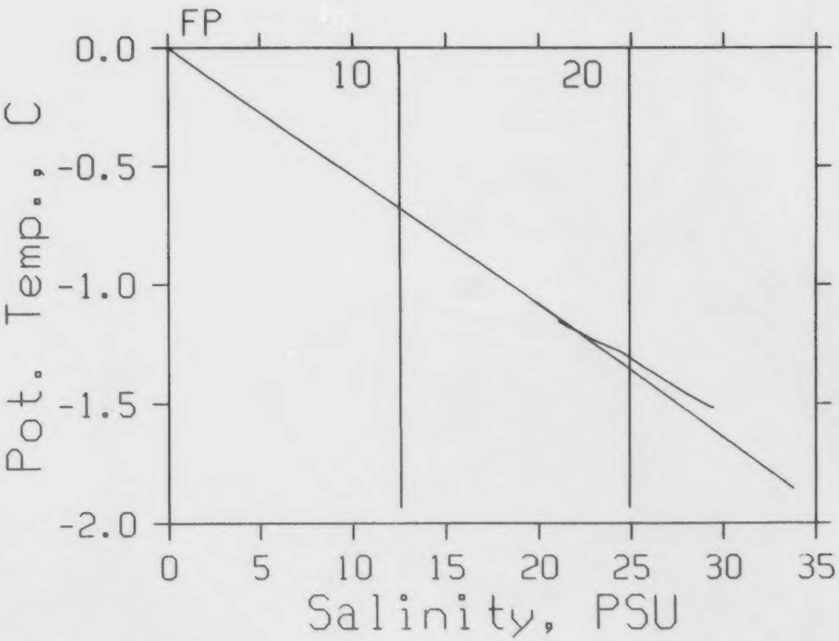




NOGAP ICEWORK 1991
STATION : CD01
REFERENCE NO.: 91-09-044
DATE/TIME : 04/05/91 16:45 MDT
POSITION : 70-20.0N 129-40.0W

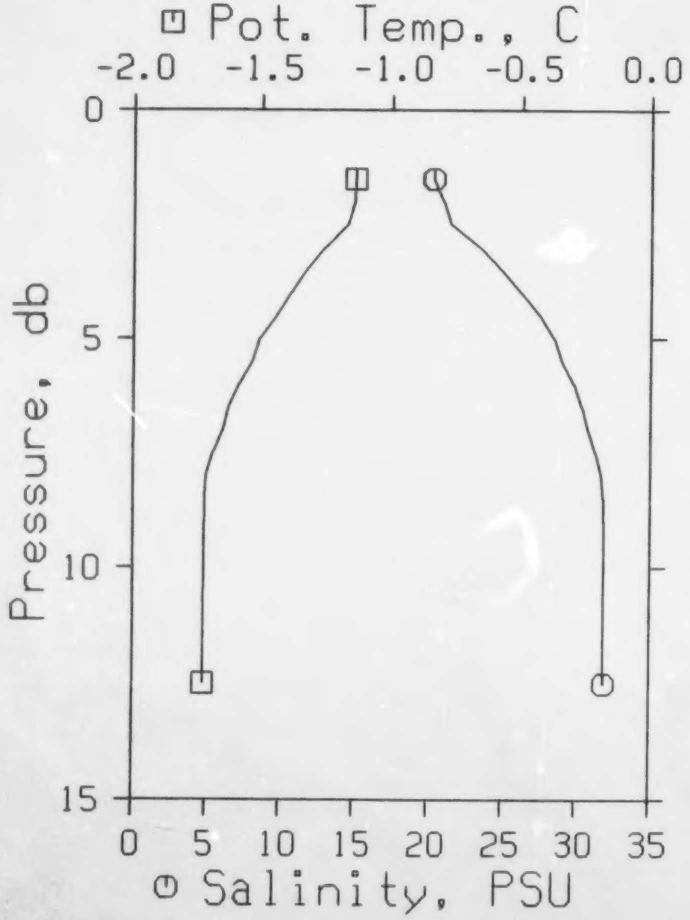
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.158	-1.158	21.150	16.97	1068.1	.22	.00	1425
4	4	-1.282	-1.282	24.443	19.63	811.0	.41	.01	1429
4	4	-1.305	-1.305	24.899	20.00	775.5	.42	.01	1429
6	6	-1.513	-1.513	29.441	23.68	422.6	.52	.01	1435
7	7	-1.514	-1.514	29.475	23.71	420.0	.56	.02	1435

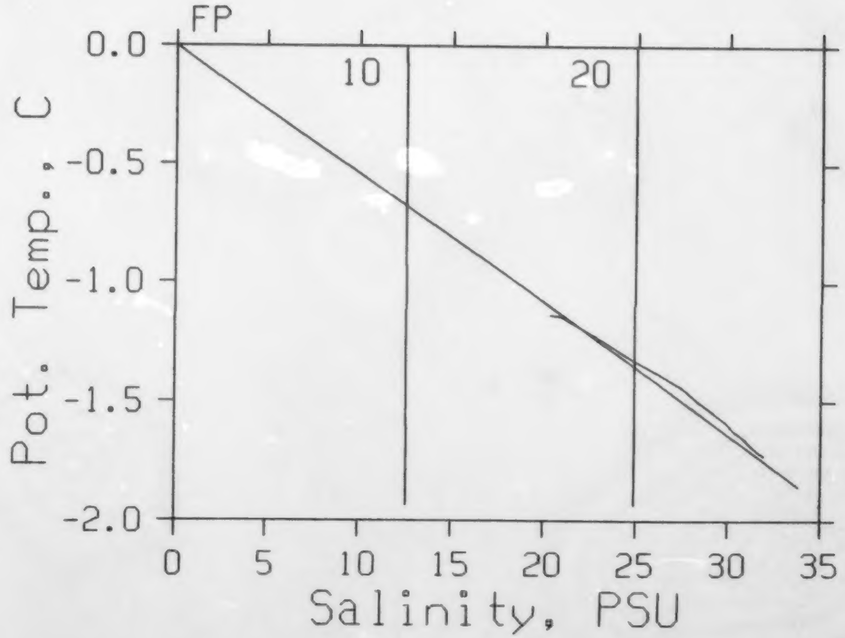




NOGAP ICEWORK 1991
STATION : CD02
REFERENCE NO.: 91-09-045
DATE/TIME : 04/05/91 18:49 MDT
POSITION : 70-25.0N 129-40.0W

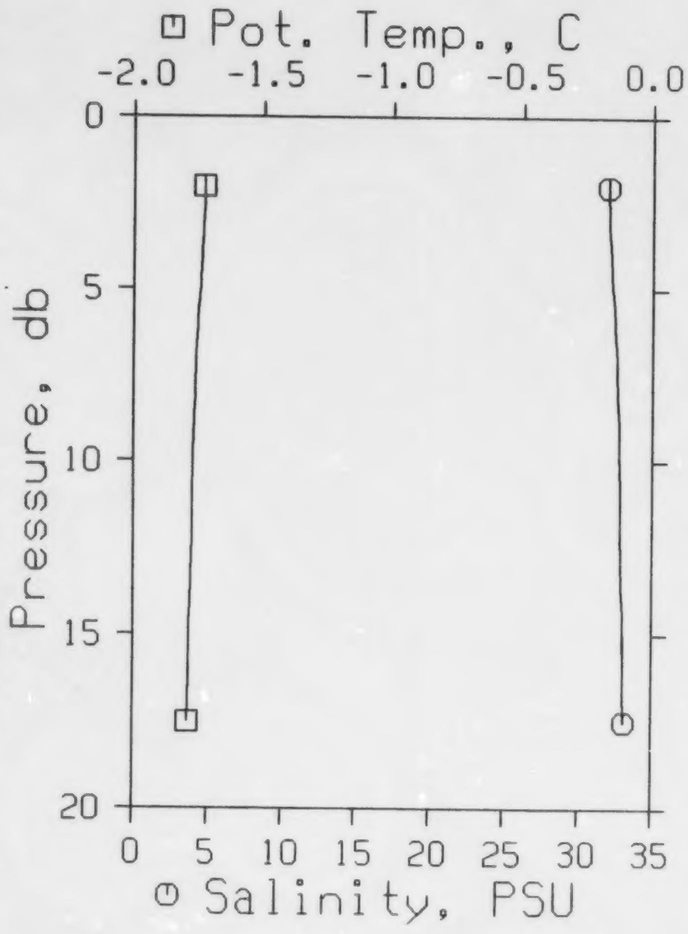
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.143	-1.143	20.968	16.82	1082.3	.23	.00	1425
4	4	-1.386	-1.386	26.242	21.09	670.9	.40	.01	1431
6	6	-1.585	-1.585	29.862	24.03	389.9	.51	.01	1435
8	8	-1.716	-1.716	31.731	25.55	245.1	.57	.02	1437
10	10	-1.723	-1.723	31.913	25.69	231.1	.62	.02	1437
13	12	-1.726	-1.726	31.931	25.71	229.7	.67	.03	1437

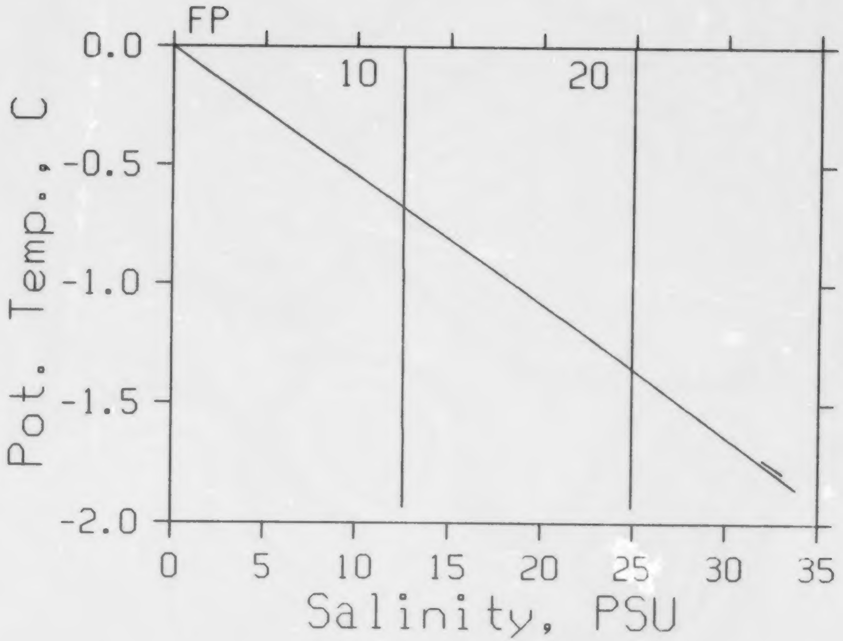




NOGAP ICEWORK 1991
STATION : CD03
REFERENCE NO.: 91-09-040
DATE/TIME : 03/05/91 14:44 MDT
POSITION : 70-31.5N 129-39.5W

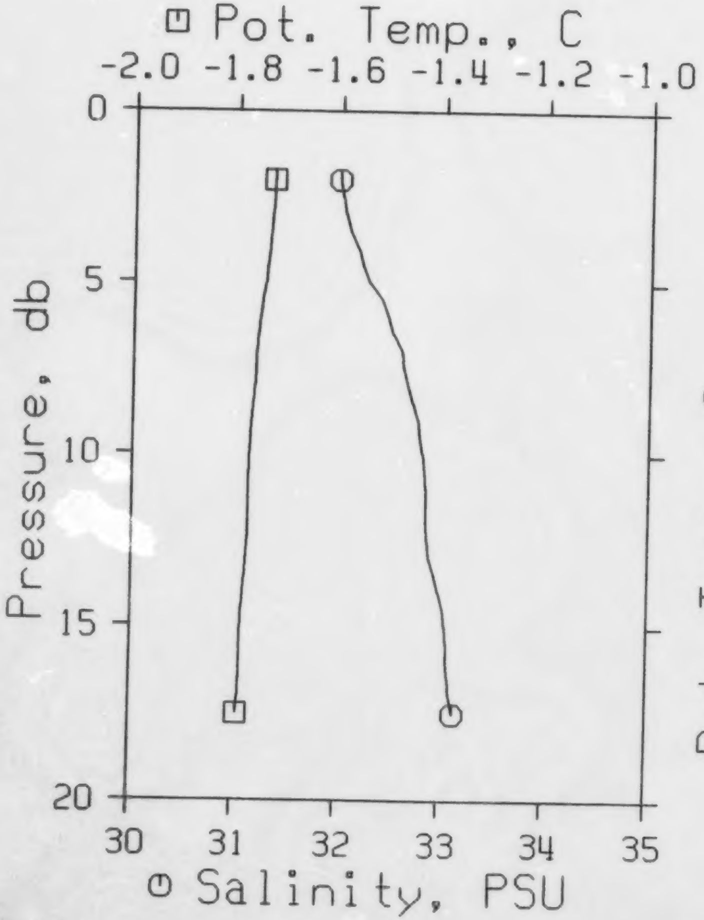
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.729	-1.729	31.983	25.75	225.7	.05	.00	1437
4	4	-1.738	-1.738	32.168	25.90	211.4	.09	.00	1437
6	6	-1.754	-1.754	32.464	26.14	188.5	.13	.00	1438
8	8	-1.763	-1.763	32.661	26.30	173.2	.17	.01	1438
10	10	-1.772	-1.772	32.815	26.43	161.3	.20	.01	1438
15	15	-1.785	-1.785	33.047	26.62	143.4	.28	.02	1438
18	17	-1.790	-1.790	33.135	26.69	136.6	.31	.03	1438

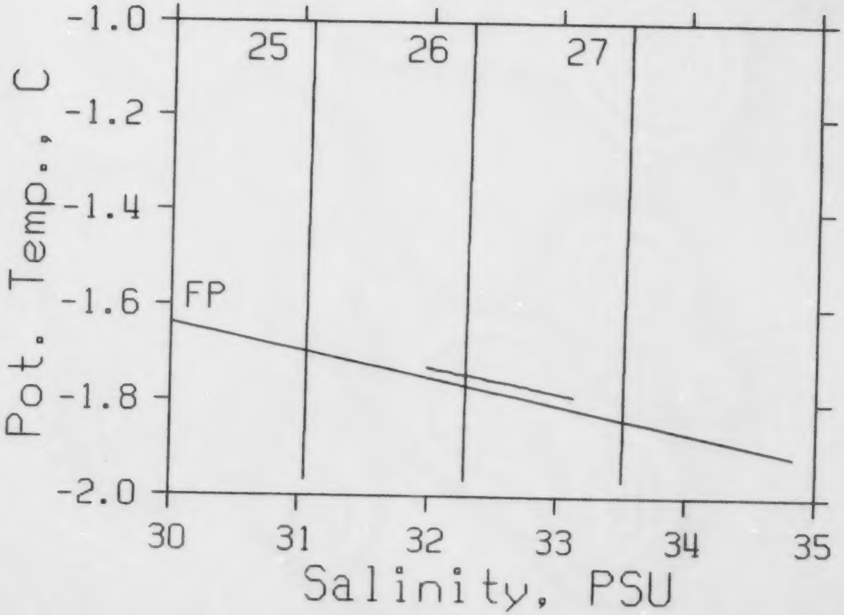




NOGAP ICEWORK 1991
STATION : CD03
REFERENCE NO.: 91-09-040
DATE/TIME : 03/05/91 14:44 MDT
POSITION : 70-31.5N 129-39.5W

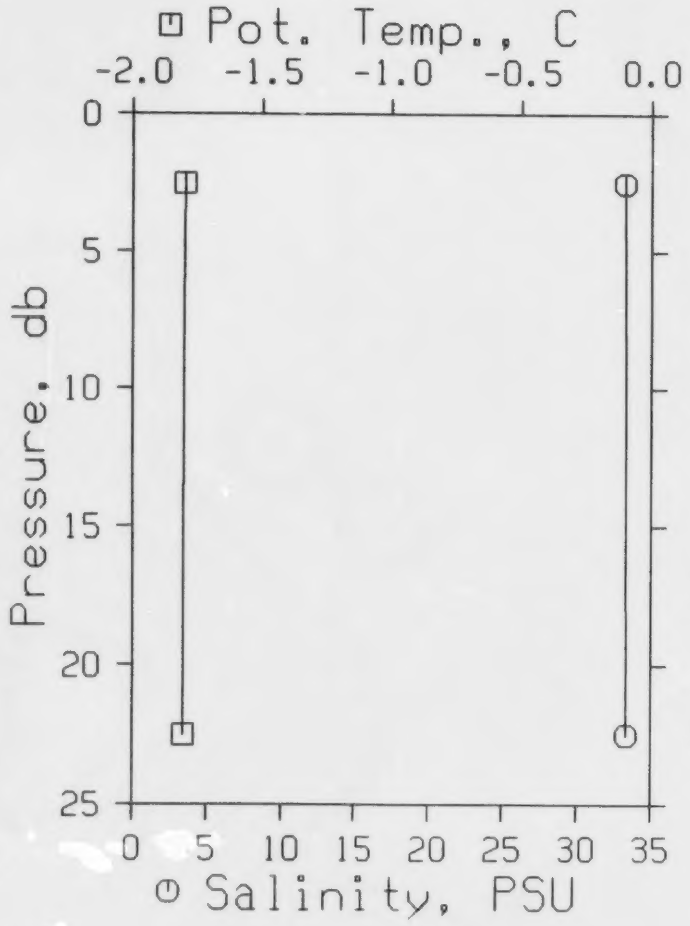
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.729	-1.729	31.983	25.75	225.7	.05	.00	1437
4	4	-1.738	-1.738	32.168	25.90	211.4	.09	.00	1437
6	6	-1.754	-1.754	32.464	26.14	188.5	.13	.00	1438
8	8	-1.763	-1.763	32.661	26.30	173.2	.17	.01	1438
10	10	-1.772	-1.772	32.815	26.43	161.3	.20	.01	1438
15	15	-1.785	-1.785	33.047	26.62	143.4	.28	.02	1438
18	17	-1.790	-1.790	33.135	26.69	136.6	.31	.03	1438

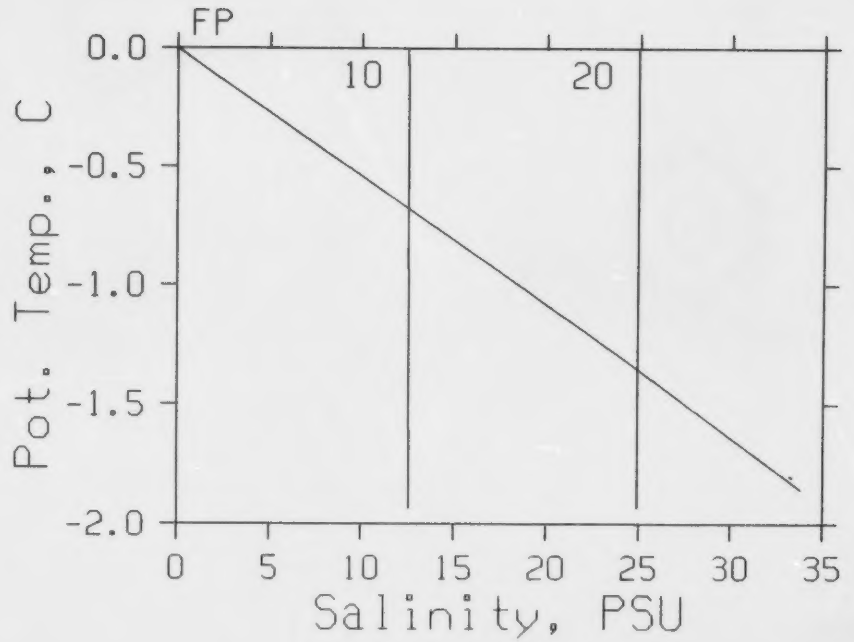




NOGAP ICEWORK 1991
STATION : CD04
REFERENCE NO.: 91-09-039
DATE/TIME : 03/05/91 13:10 MDT
POSITION : 70-39.9N 129-40.8W

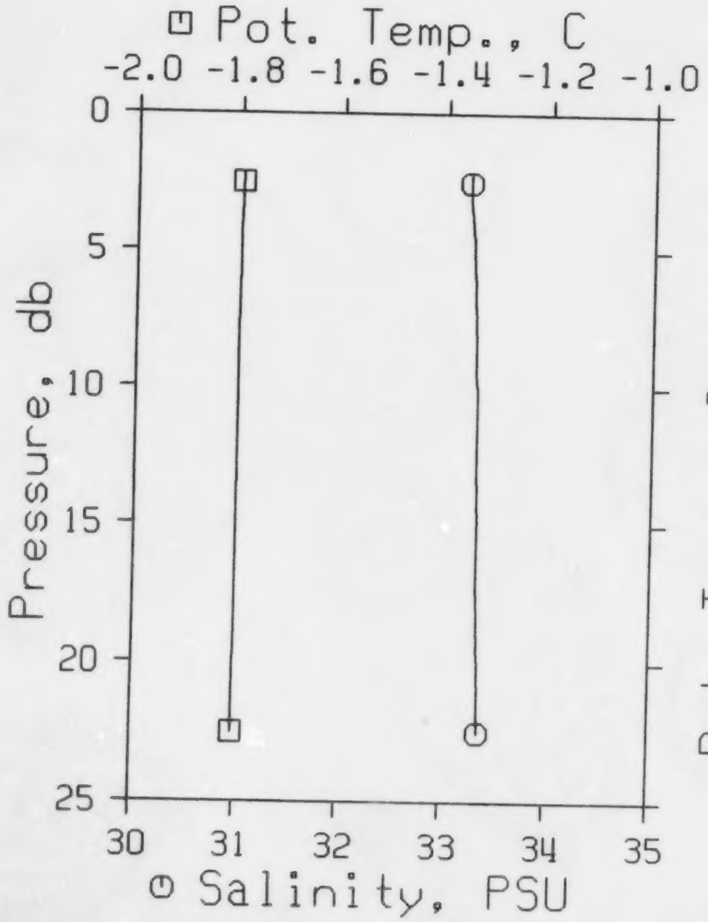
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.796	-1.796	33.222	26.76	129.9	.03	.00	1438
4	4	-1.798	-1.798	33.242	26.78	128.3	.05	.00	1438
6	6	-1.799	-1.799	33.276	26.81	125.7	.08	.00	1438
8	8	-1.801	-1.801	33.289	26.82	124.7	.10	.00	1438
10	10	-1.802	-1.802	33.307	26.83	123.3	.13	.01	1439
15	15	-1.802	-1.802	33.321	26.84	122.2	.19	.01	1439
20	20	-1.804	-1.804	33.349	26.86	120.1	.25	.03	1439
23	22	-1.804	-1.804	33.359	26.87	119.3	.28	.03	1439

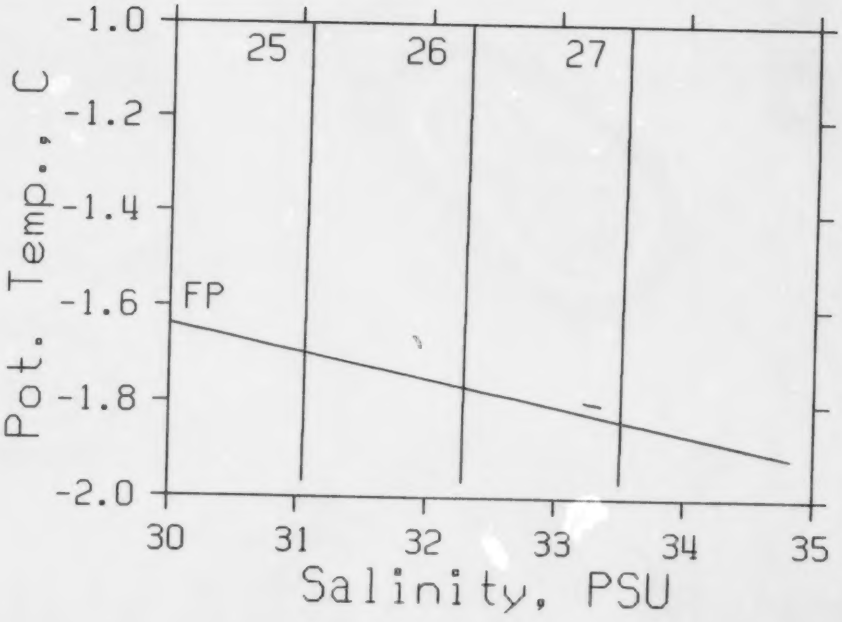




NOGAP ICEWORK 1991
STATION : CD04
REFERENCE NO.: 91-09-039
DATE/TIME : 03/05/91 13:10 MDT
POSITION : 70-39.9N 129-40.8W

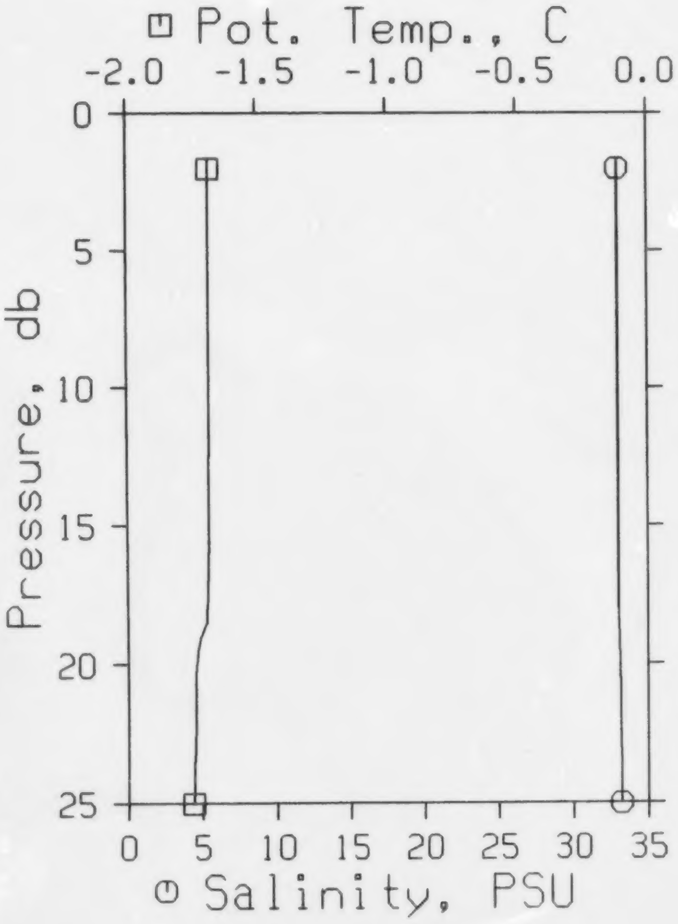
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.796	-1.796	33.222	26.76	129.9	.03	.00	1438
4	4	-1.798	-1.798	33.242	26.78	128.3	.05	.00	1438
6	6	-1.799	-1.799	33.276	26.81	125.7	.08	.00	1438
8	8	-1.801	-1.801	33.289	26.82	124.7	.10	.00	1438
10	10	-1.802	-1.802	33.307	26.83	123.3	.13	.01	1439
15	15	-1.802	-1.802	33.321	26.84	122.2	.19	.01	1439
20	20	-1.804	-1.804	33.349	26.86	120.1	.25	.03	1439
23	22	-1.804	-1.804	33.359	26.87	119.3	.28	.03	1439

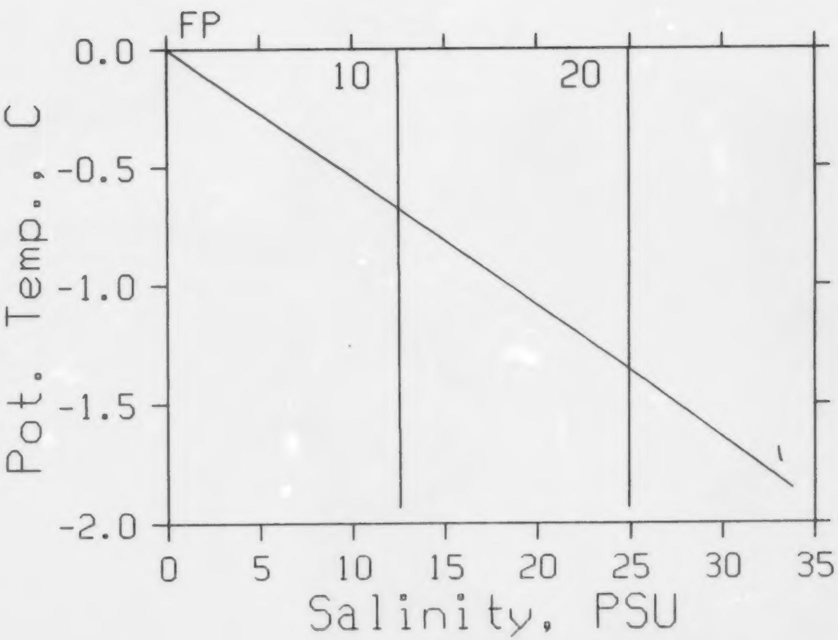




NOGAP ICEWORK 1991
STATION : CD05
REFERENCE NO.: 91-09-037
DATE/TIME : 03/05/91 12:29 MDT
POSITION : 70-48.3N 129-40.4W

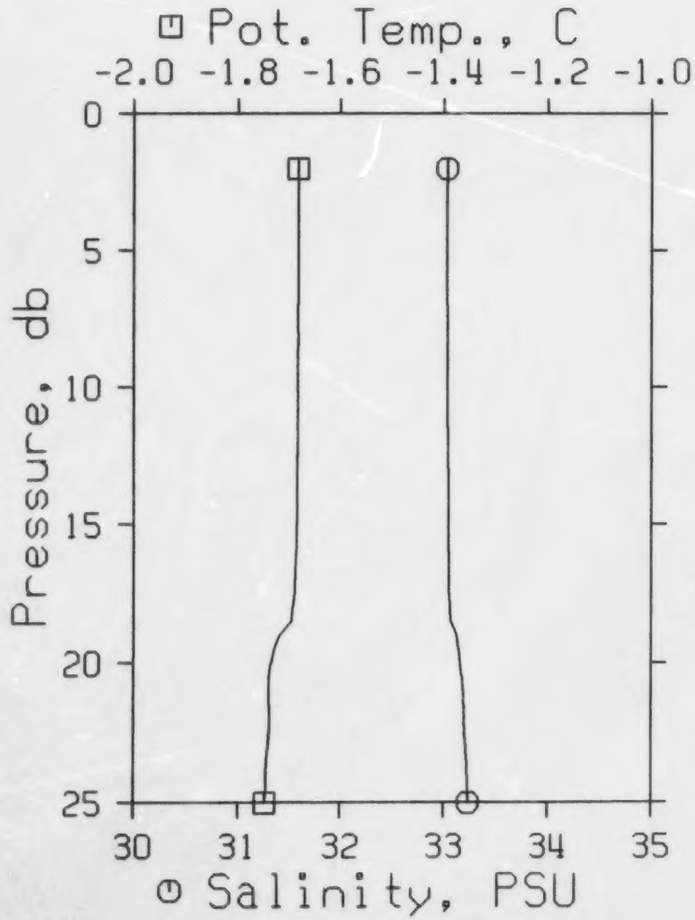
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.683	-1.683	33.030	26.60	145.0	.03	.00	1439
4	4	-1.683	-1.683	33.024	26.60	145.4	.06	.00	1439
6	6	-1.683	-1.683	33.024	26.60	145.4	.09	.00	1439
8	8	-1.683	-1.683	33.031	26.60	144.9	.12	.00	1439
10	10	-1.684	-1.684	33.030	26.60	144.9	.15	.01	1439
15	15	-1.685	-1.685	33.044	26.61	143.9	.22	.02	1439
20	20	-1.735	-1.735	33.161	26.71	134.7	.29	.03	1439
25	25	-1.747	-1.747	33.235	26.77	129.0	.35	.04	1439
26	25	-1.747	-1.747	33.234	26.77	129.1	.36	.05	1439

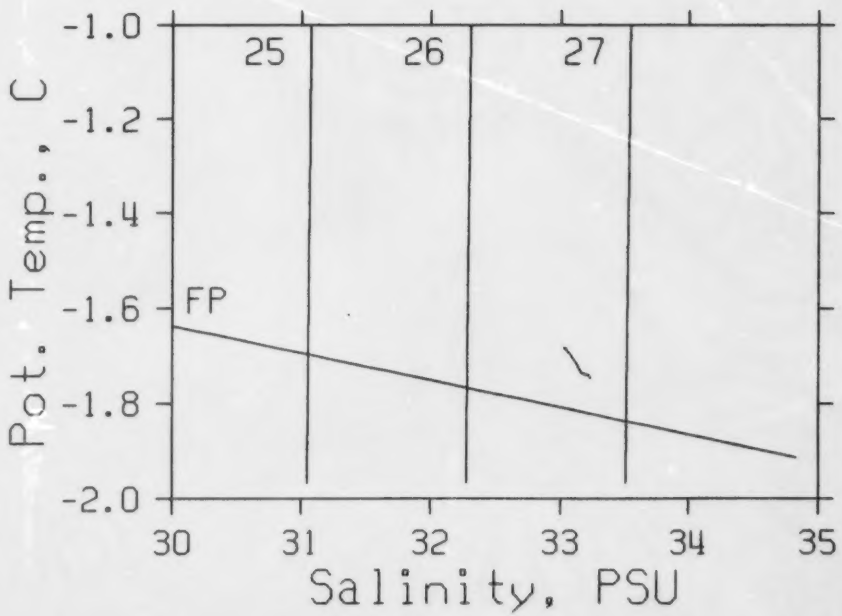




NOGAP ICEWORK 1991
STATION : CD05
REFERENCE NO.: 91-09-037
DATE/TIME : 03/05/91 12:29 MDT
POSITION : 70-48.3N 129-40.4W

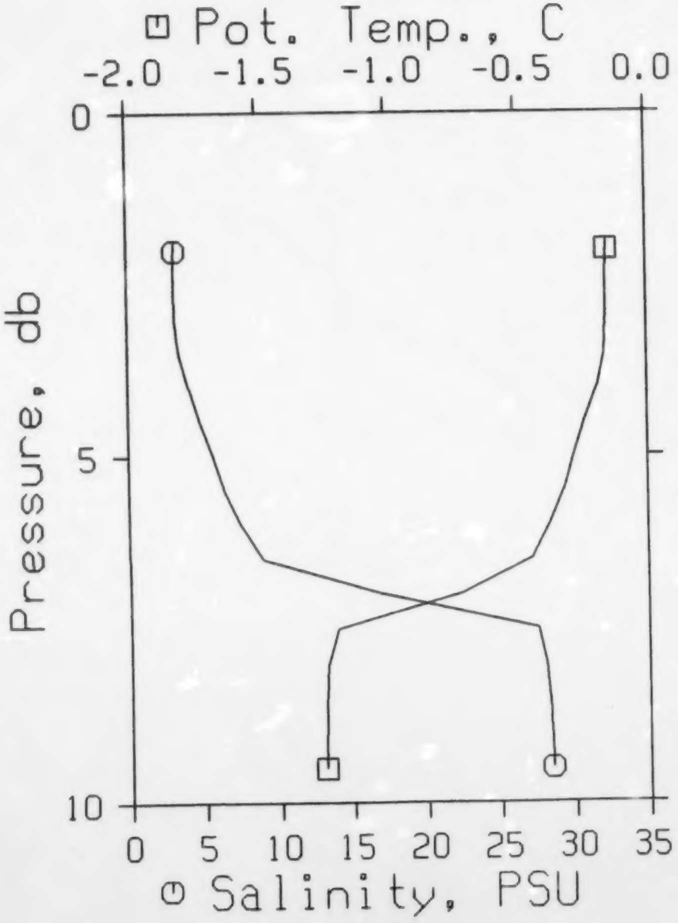
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.683	-1.683	33.030	26.60	145.0	.03	.00	1439
4	4	-1.683	-1.683	33.024	26.60	145.4	.06	.00	1439
6	6	-1.683	-1.683	33.024	26.60	145.4	.09	.00	1439
8	8	-1.683	-1.683	33.031	26.60	144.9	.12	.00	1439
10	10	-1.684	-1.684	33.030	26.60	144.9	.15	.01	1439
15	15	-1.685	-1.685	33.044	26.61	143.9	.22	.02	1439
20	20	-1.735	-1.735	33.161	26.71	134.7	.29	.03	1439
25	25	-1.747	-1.747	33.235	26.77	129.0	.35	.04	1439
26	25	-1.747	-1.747	33.234	26.77	129.1	.36	.05	1439

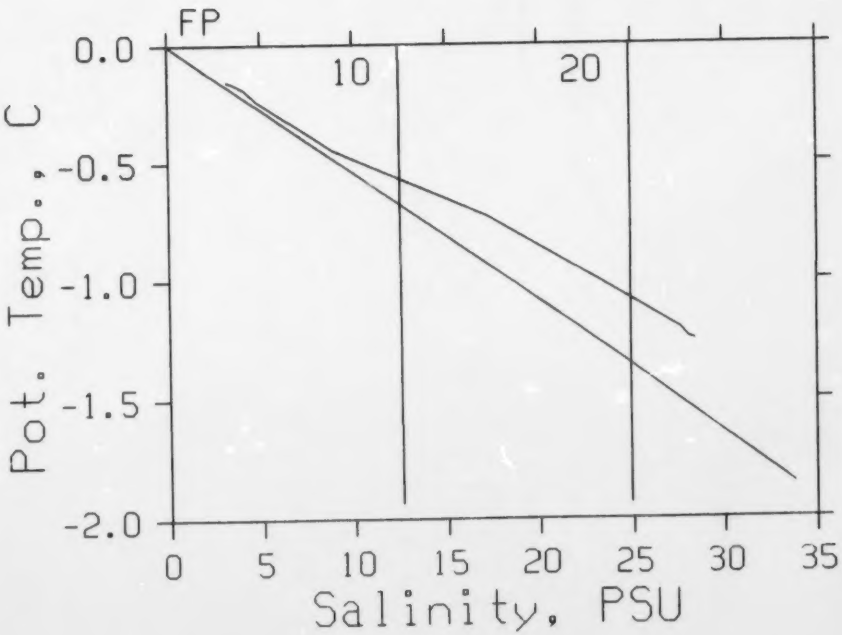




NOGAP ICEWORK 1991
STATION : CM01
REFERENCE NO.: 91-09-032
DATE/TIME : 30/04/91 17:47 MDT
POSITION : 69-45.0N 133-17.7W

PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.153	-.153	3.199	2.47	2490.0	.50	.01	1406
4	4	-.191	-.191	4.124	3.22	2415.5	.99	.02	1407
6	6	-.378	-.378	7.548	5.98	2141.5	1.45	.04	1411
8	8	-1.242	-1.242	28.075	22.57	528.8	1.72	.06	1434
10	9	-1.251	-1.251	28.453	22.88	499.5	1.79	.07	1435





NOGAP ICEWORK 1991

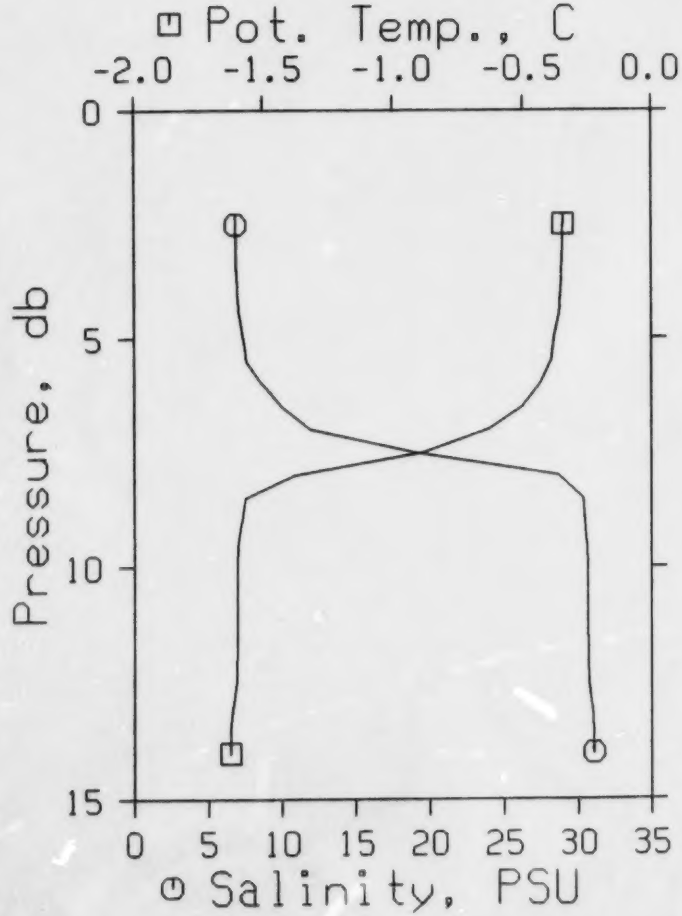
STATION : CM02

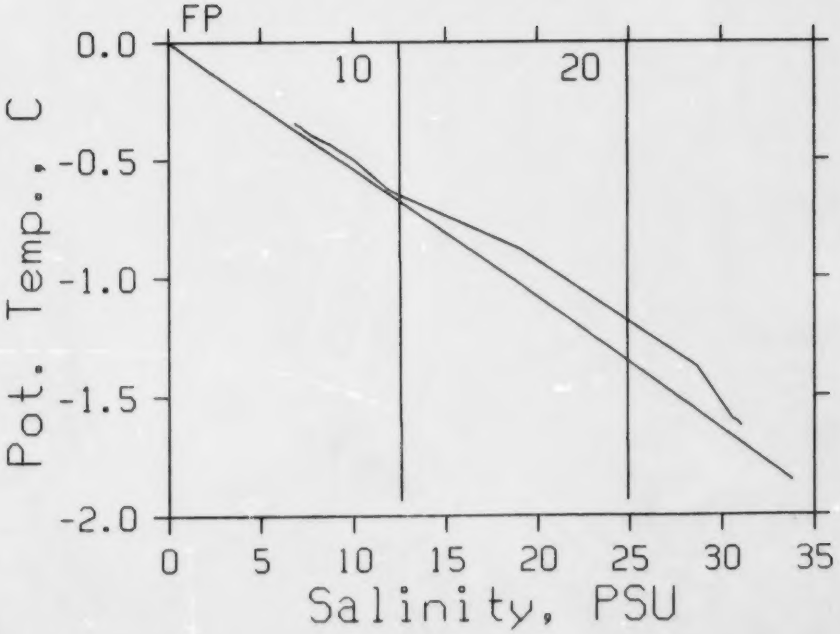
REFERENCE NO.: 91-09-017

DATE/TIME : 28/04/91 18:16 MDT

POSITION : 69-50.0N 133-20.0W

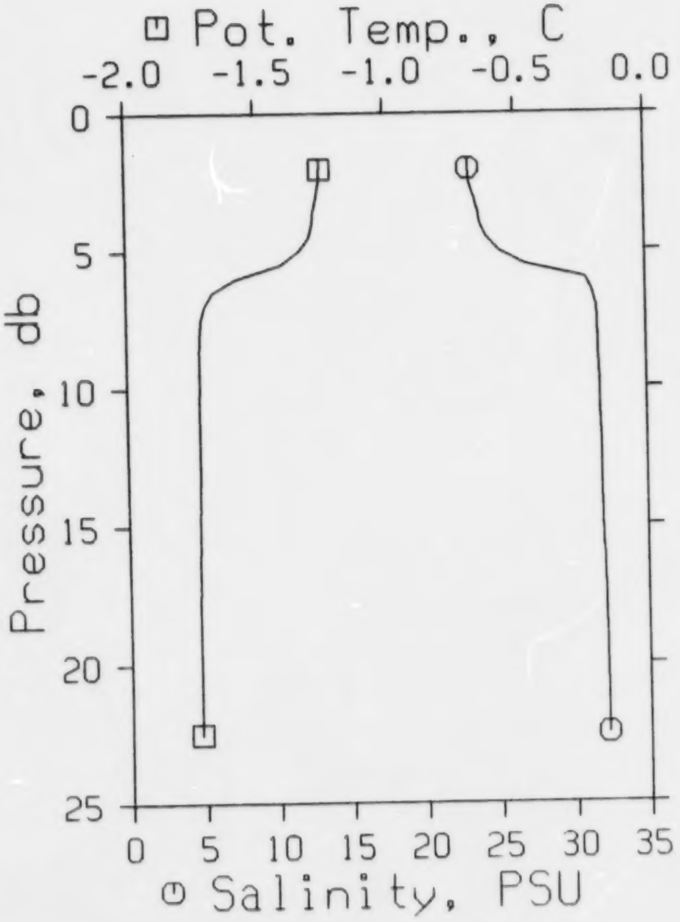
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.343	-.343	6.872	5.44	2195.4	.44	.01	1410
4	4	-.353	-.353	6.998	5.54	2185.4	.88	.02	1410
6	6	-.432	-.432	8.682	6.90	2051.1	1.31	.04	1412
8	8	-1.182	-1.182	24.894	20.00	776.8	1.60	.06	1430
8	8	-1.375	-1.375	28.645	23.04	484.4	1.62	.06	1434
10	10	-1.601	-1.601	30.664	24.68	327.8	1.69	.07	1436
14	14	-1.628	-1.628	31.076	25.01	295.9	1.82	.08	1436

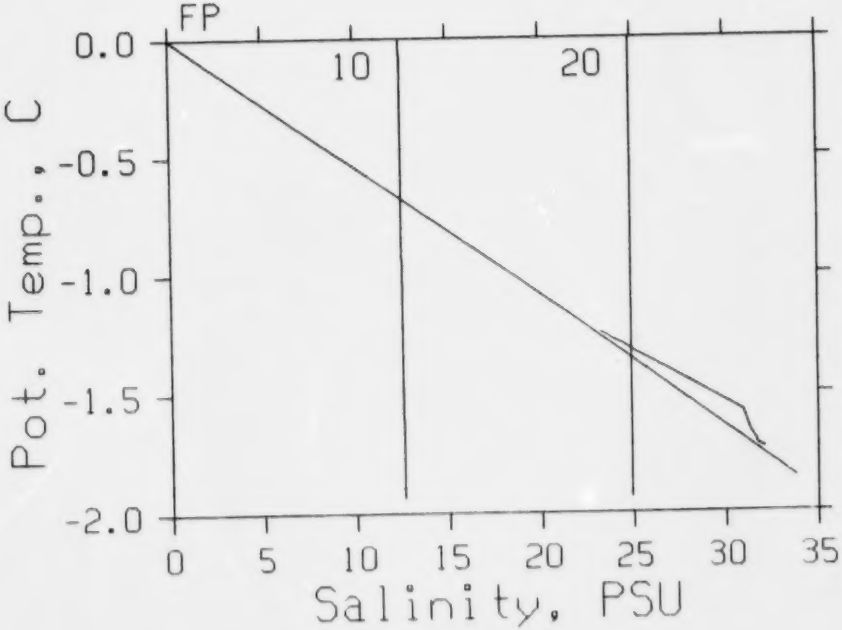




NOGAP ICEWORK 1991
STATION : CM03
REFERENCE NO.: 91-09-016
DATE/TIME : 28/04/91 14:50 MDT
POSITION : 69-56.0N 133-21.6W

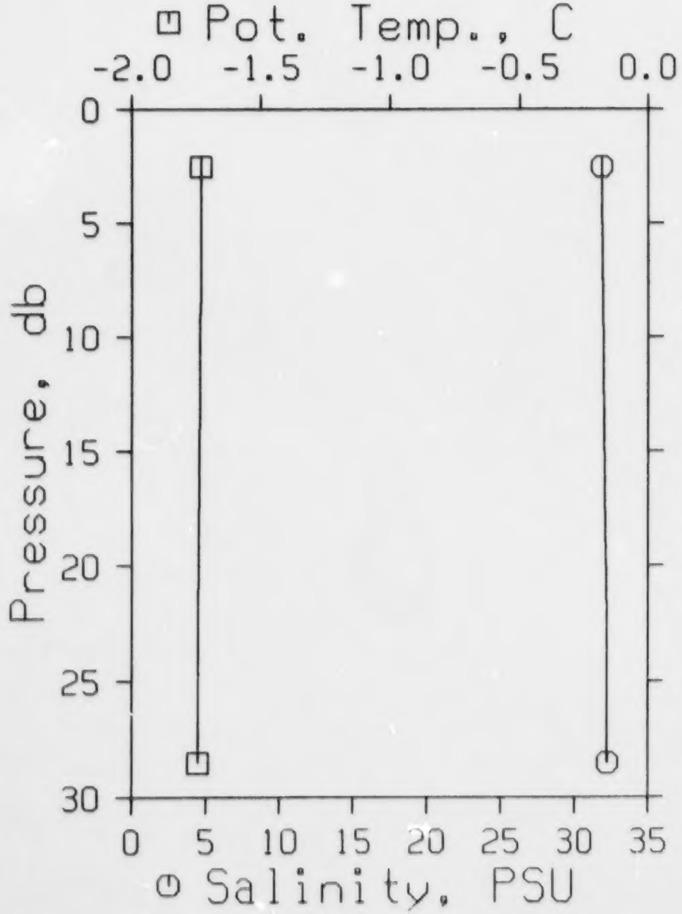
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.245	-1.245	23.182	18.61	909.3	.18	.00	1427
4	4	-1.277	-1.277	23.985	19.26	846.7	.36	.01	1428
6	6	-1.578	-1.578	30.982	24.94	303.3	.50	.01	1436
8	8	-1.717	-1.717	31.756	25.57	243.2	.55	.02	1437
10	10	-1.720	-1.720	31.827	25.63	237.7	.60	.02	1437
15	15	-1.727	-1.727	31.968	25.74	226.8	.71	.04	1437
20	20	-1.733	-1.733	32.157	25.89	212.2	.82	.06	1437
23	22	-1.732	-1.732	32.163	25.90	211.7	.87	.07	1438

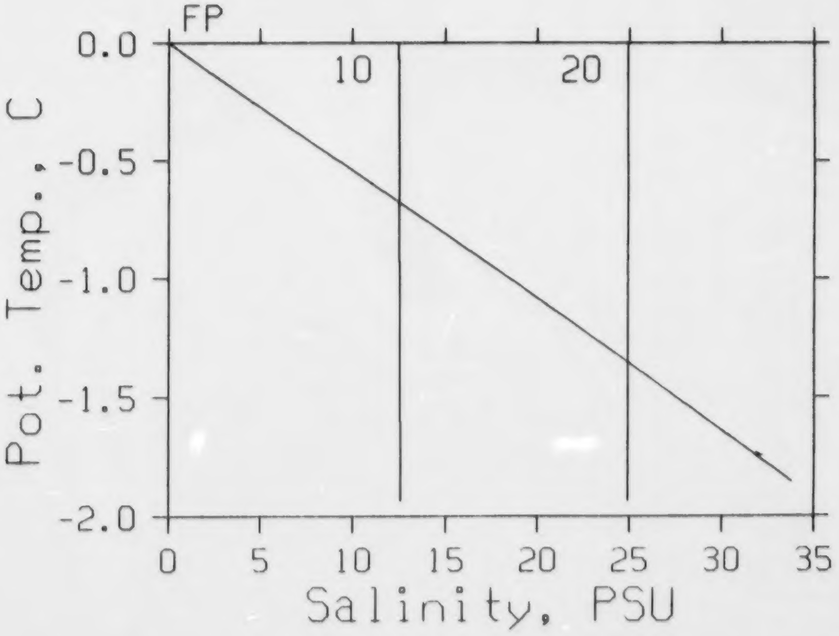




NOGAP ICEWORK 1991
STATION : CM04
REFERENCE NO.: 91-09-015
DATE/TIME : 28/04/91 10:45 MDT
POSITION : 70- 1.0N 133-23.9W

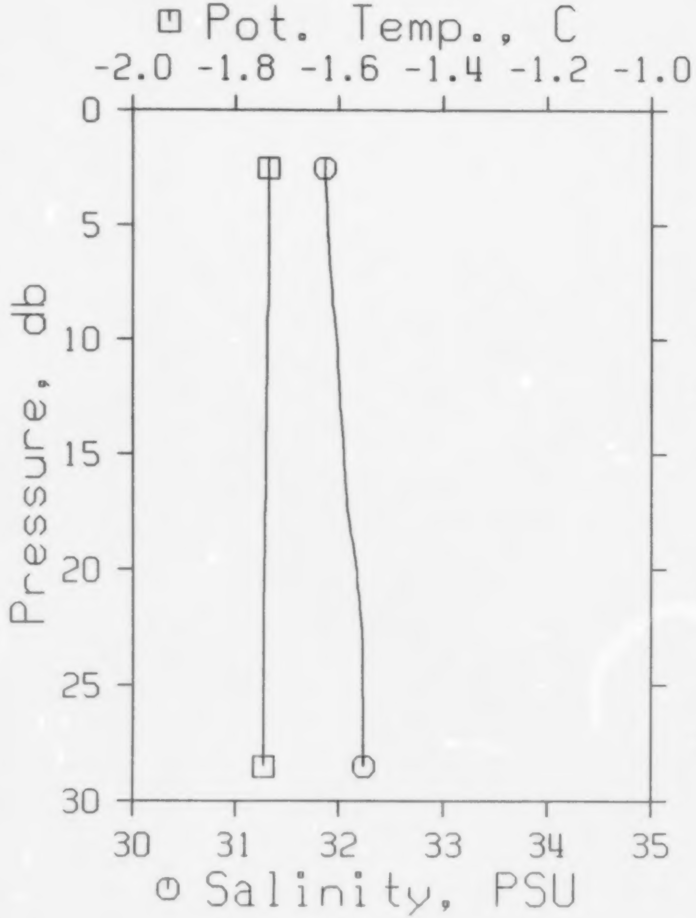
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.735	-1.735	31.866	25.66	234.7	.05	.00	1437
4	4	-1.735	-1.735	31.886	25.67	233.1	.09	.00	1437
6	6	-1.735	-1.735	31.903	25.69	231.8	.14	.00	1437
8	8	-1.735	-1.735	31.935	25.71	229.4	.19	.01	1437
10	10	-1.738	-1.738	31.980	25.75	225.9	.23	.01	1437
15	15	-1.740	-1.740	32.049	25.81	220.5	.34	.03	1437
20	20	-1.744	-1.744	32.173	25.91	211.0	.45	.05	1437
25	25	-1.745	-1.745	32.232	25.95	206.4	.56	.07	1438
29	28	-1.745	-1.745	32.241	25.96	205.7	.63	.09	1438

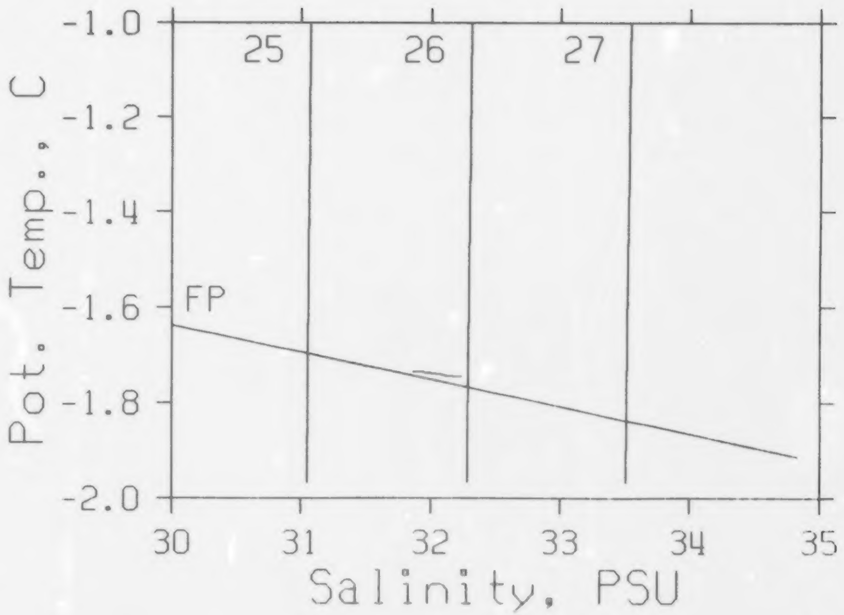




NOGAP ICEWORK 1991
STATION : CM04
REFERENCE NO.: 91-09-015
DATE/TIME : 28/04/91 10:45 MDT
POSITION : 70- 1.0N 133-23.9W

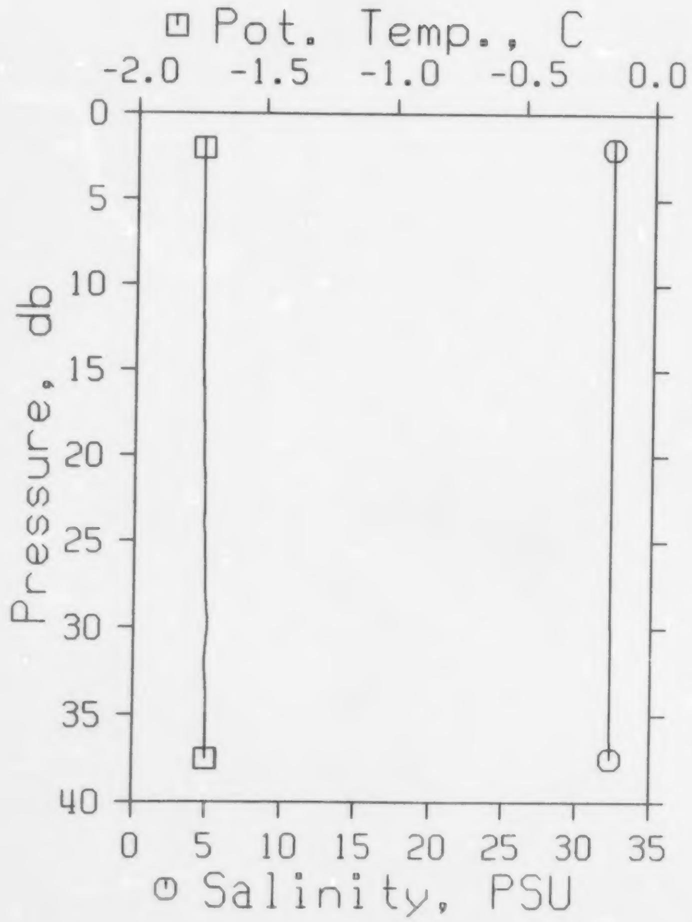
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.735	-1.735	31.866	25.66	234.7	.05	.00	1437
4	4	-1.735	-1.735	31.886	25.67	233.1	.09	.00	1437
6	6	-1.735	-1.735	31.903	25.69	231.8	.14	.00	1437
8	8	-1.735	-1.735	31.935	25.71	229.4	.19	.01	1437
10	10	-1.738	-1.738	31.980	25.75	225.9	.23	.01	1437
15	15	-1.740	-1.740	32.049	25.81	220.5	.34	.03	1437
20	20	-1.744	-1.744	32.173	25.91	211.0	.45	.05	1437
25	25	-1.745	-1.745	32.232	25.95	206.4	.56	.07	1438
29	28	-1.745	-1.745	32.241	25.96	205.7	.63	.09	1438

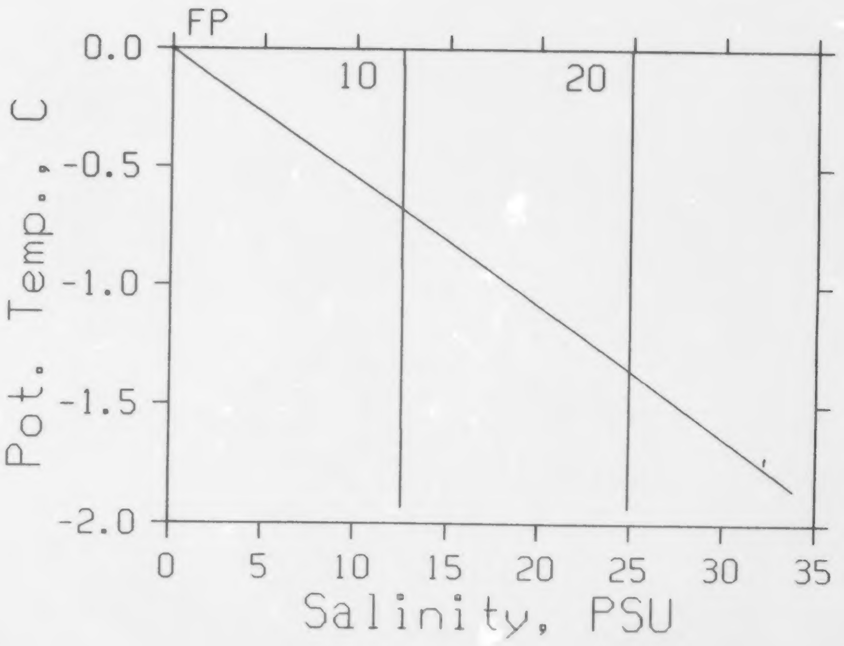




NOGAP ICEWORK 1991
STATION : CM05
REFERENCE NO.: 91-09-010
DATE/TIME : 26/09/91 16:56 MDT
POSITION : 70- 8.1N 133-25.3W

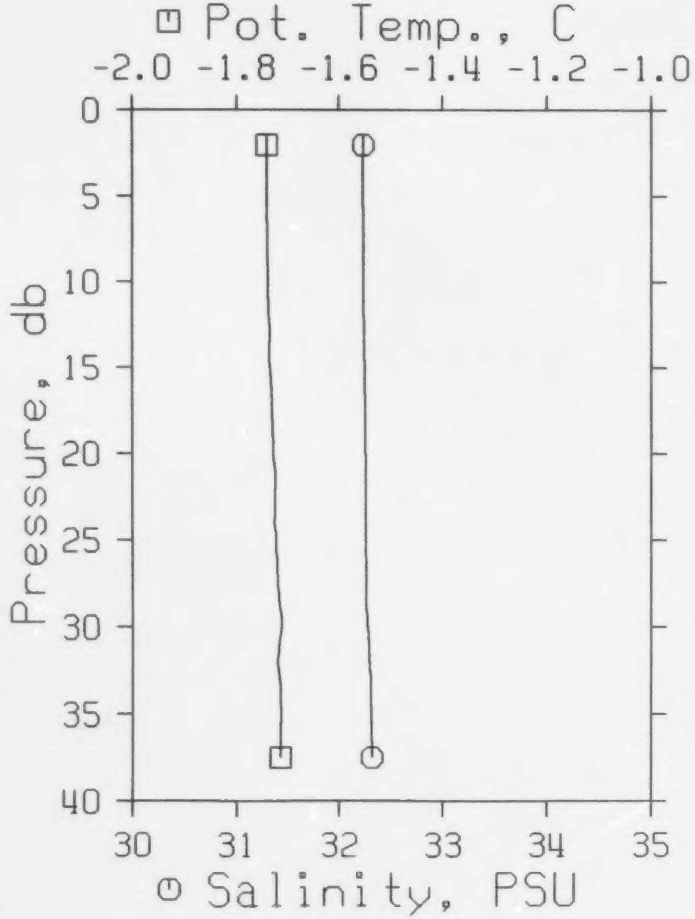
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.742	-1.742	32.234	25.96	206.2	.04	.00	1437
4	4	-1.742	-1.742	32.233	25.96	206.3	.08	.00	1437
6	6	-1.742	-1.742	32.236	25.96	206.1	.12	.00	1437
8	8	-1.740	-1.740	32.235	25.96	206.2	.16	.01	1437
10	10	-1.739	-1.739	32.236	25.96	206.1	.21	.01	1437
15	15	-1.735	-1.735	32.249	25.97	205.1	.31	.02	1438
20	20	-1.729	-1.729	32.260	25.98	204.3	.41	.04	1438
25	25	-1.723	-1.723	32.261	25.98	204.2	.51	.07	1438
30	30	-1.712	-1.712	32.278	25.99	202.9	.62	.09	1438
35	35	-1.713	-1.714	32.315	26.02	200.1	.72	.13	1438
38	37	-1.714	-1.715	32.320	26.03	199.7	.77	.15	1438

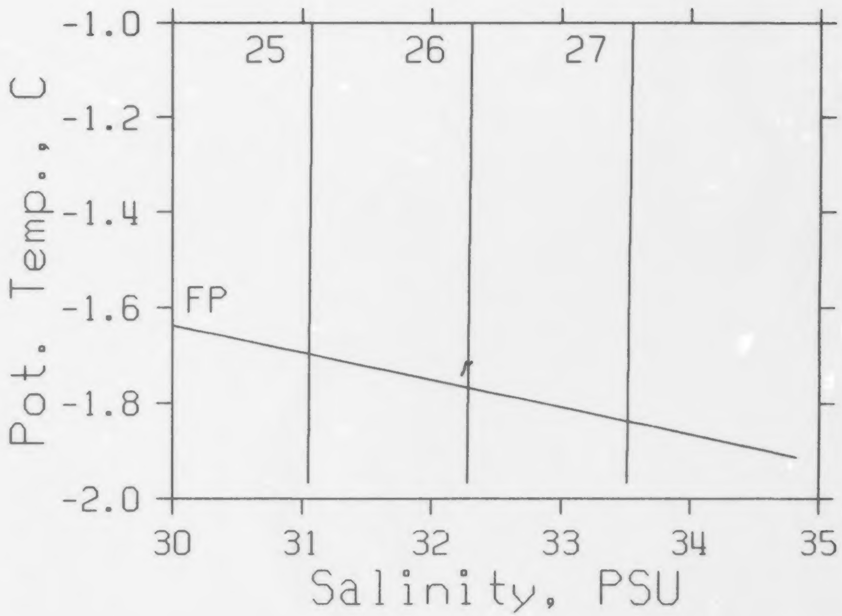




NOGAP ICEWORK 1991
STATION : CM05
REFERENCE NO.: 91-09-010
DATE/TIME : 26/09/91 16:56 MDT
POSITION : 70- 8.1N 133-25.3W

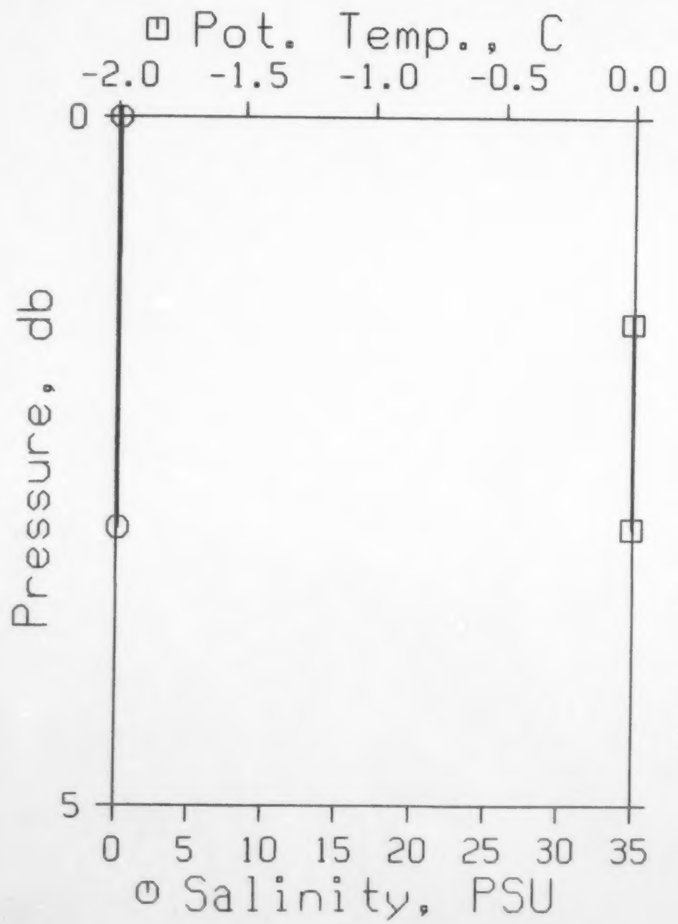
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.742	-1.742	32.234	25.96	206.2	.04	.00	1437
4	4	-1.742	-1.742	32.233	25.96	206.3	.08	.00	1437
6	6	-1.742	-1.742	32.236	25.96	206.1	.12	.00	1437
8	8	-1.740	-1.740	32.235	25.96	206.2	.16	.01	1437
10	10	-1.739	-1.739	32.236	25.96	206.1	.21	.01	1437
15	15	-1.735	-1.735	32.249	25.97	205.1	.31	.02	1438
20	20	-1.729	-1.729	32.260	25.98	204.3	.41	.04	1438
25	25	-1.723	-1.723	32.261	25.98	204.2	.51	.07	1438
30	30	-1.712	-1.712	32.278	25.99	202.9	.62	.09	1438
35	35	-1.713	-1.714	32.315	26.02	200.1	.72	.13	1438
38	37	-1.714	-1.715	32.320	26.03	199.7	.77	.15	1438

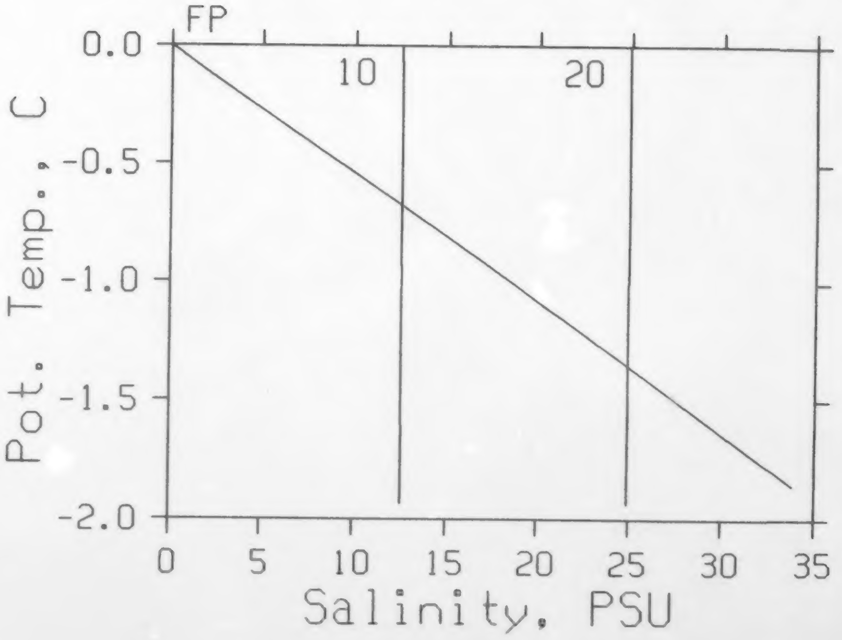




NOGAP ICEWORK 1991
STATION : flgp
REFERENCE NO.: 91-09-013
DATE/TIME : 28/04/91 14:51 MDT
POSITION : 69-27.5N 133- 4.4W

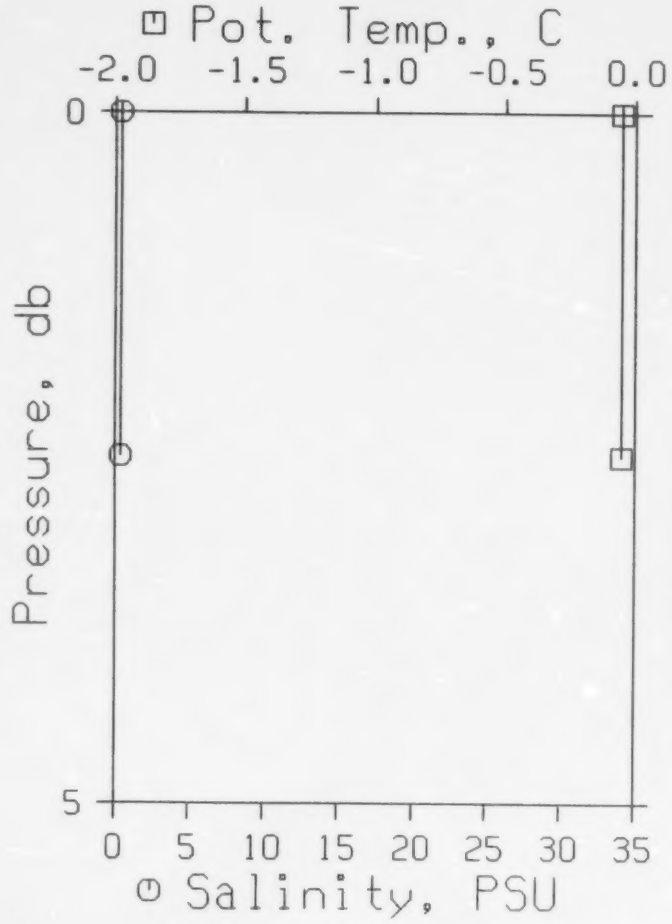
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.004	-.004	.152	-.01	2737.1	.55	.01	1403
3	3	-.003	-.003	.152	-.01	2737.1	.82	.01	1403

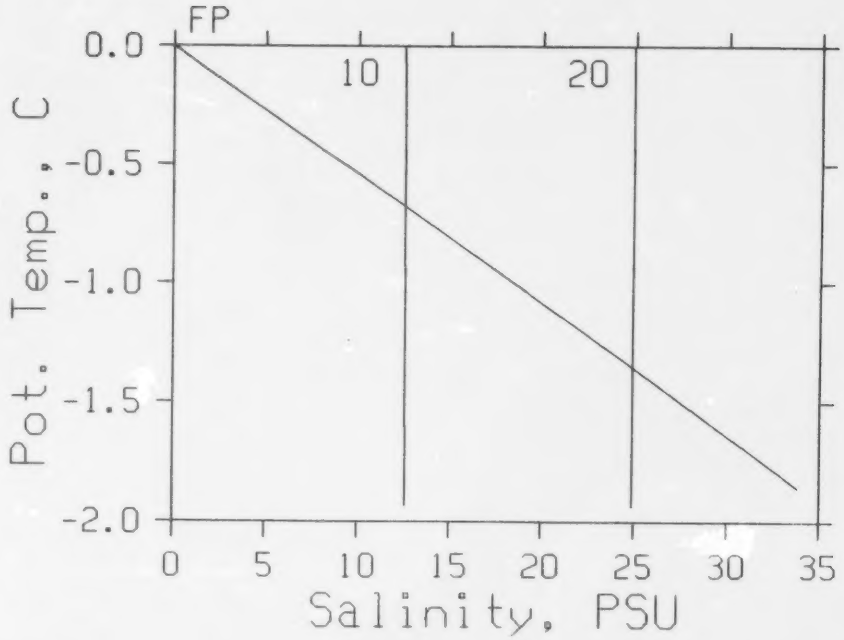




NOGAP ICEWORK 1991
STATION : GIO1
REFERENCE NO.: 91-09-071
DATE/TIME : 11/05/91 11:33 MDT
POSITION : 69-30.2N 136- 9.5W

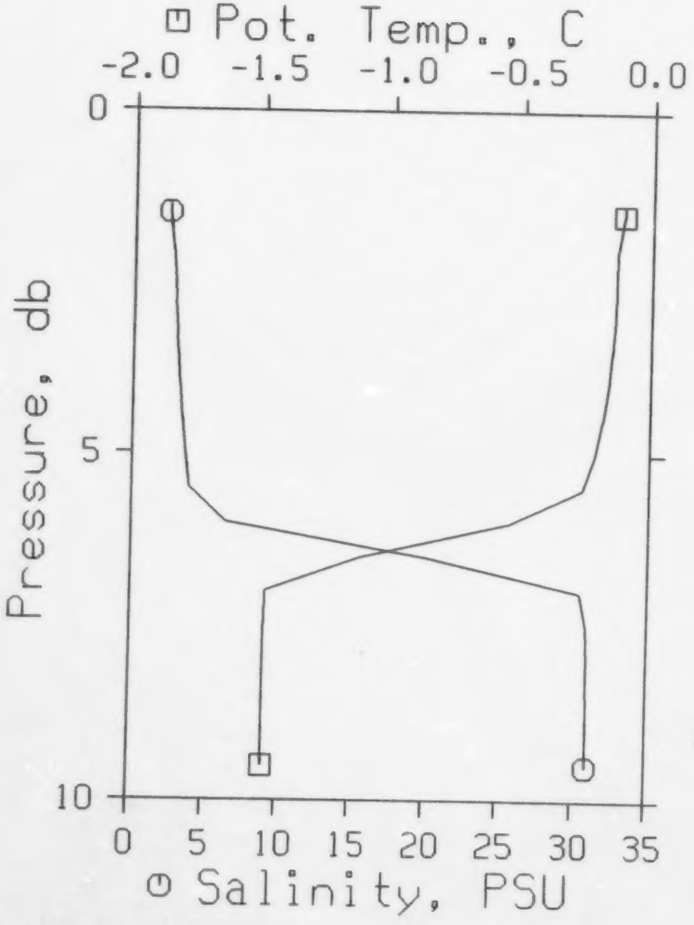
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.049	-.049	.401	.19	2716.9	.54	.01	1403
3	2	-.049	-.049	.400	.19	2717.0	.68	.01	1403

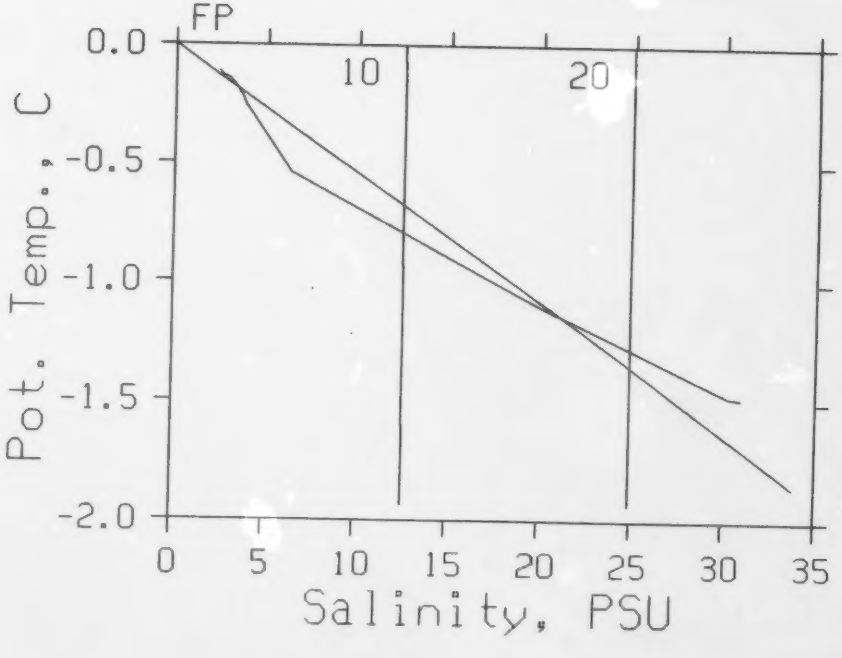




NOGAP ICEWORK 1991
STATION : GI02
REFERENCE NO.: 91-09-077
DATE/TIME : 11/05/91 17:50 MDT
POSITION : 69-38.1N 136-22.0W

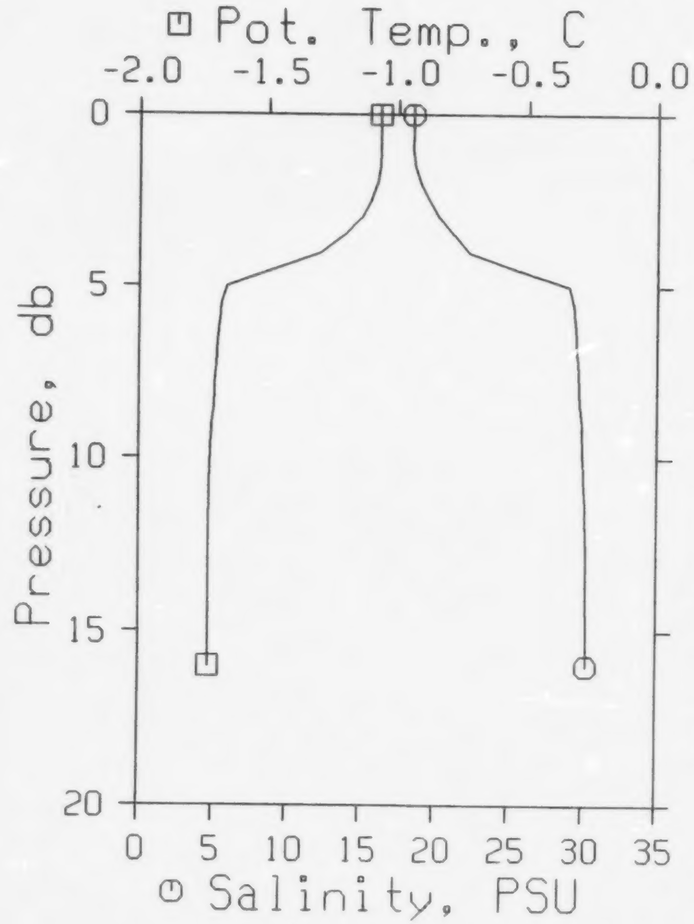
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.134	-.134	2.611	1.99	2537.5	.51	.01	1405
4	4	-.163	-.163	3.168	2.44	2492.6	1.01	.02	1406
6	6	-.540	-.540	6.363	5.02	2237.2	1.50	.05	1408
8	8	-1.483	-1.483	30.942	24.90	306.5	1.66	.06	1437
10	9	-1.482	-1.482	30.971	24.93	304.3	1.70	.06	1437

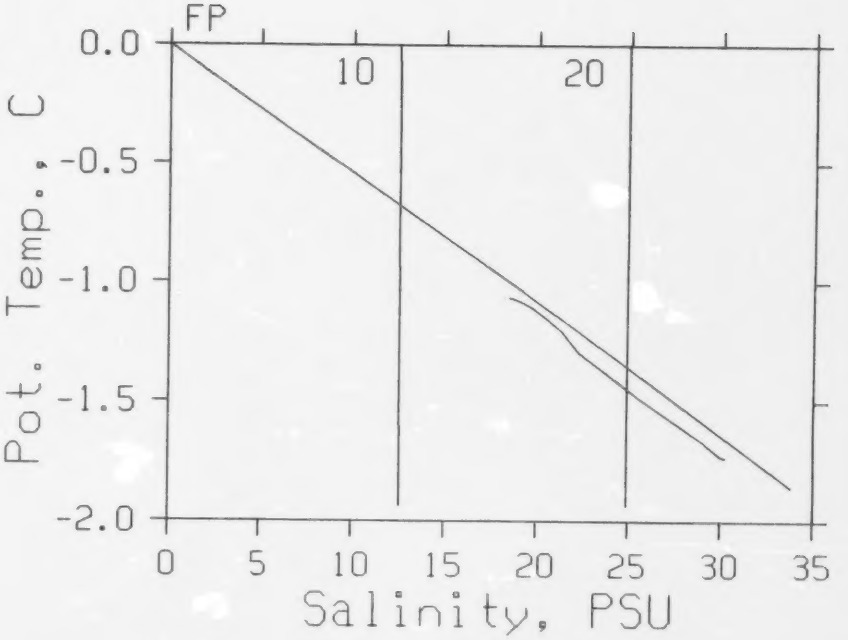




NOGAP ICEWORK 1991
STATION : GI03
REFERENCE NO.: 91-09-078
DATE/TIME : 11/05/91 19:01 MDT
POSITION : 69-43.9N 136-31.9W

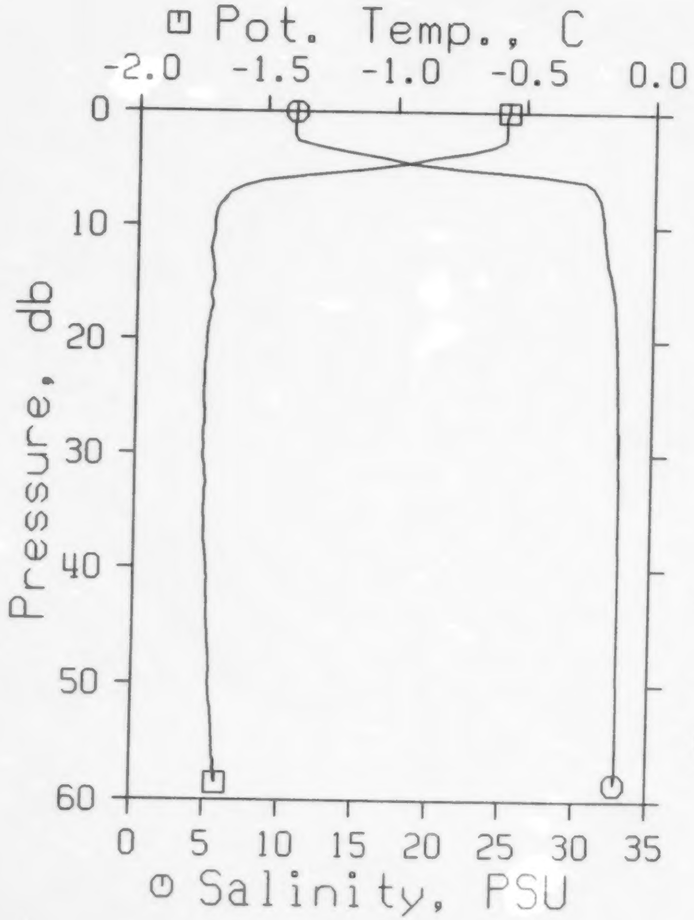
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.081	-1.081	19.045	15.26	1233.0	.25	.00	1423
4	4	-1.298	-1.298	22.316	17.91	977.0	.48	.01	1426
4	4	-1.444	-1.444	24.898	20.00	775.6	.51	.01	1429
6	6	-1.691	-1.691	29.449	23.69	421.7	.59	.01	1434
8	8	-1.709	-1.709	29.739	23.93	399.3	.67	.02	1434
10	10	-1.725	-1.725	29.986	24.13	380.1	.75	.03	1434
15	15	-1.731	-1.731	30.268	24.36	358.3	.93	.05	1435
16	16	-1.731	-1.731	30.282	24.37	357.2	.97	.06	1435

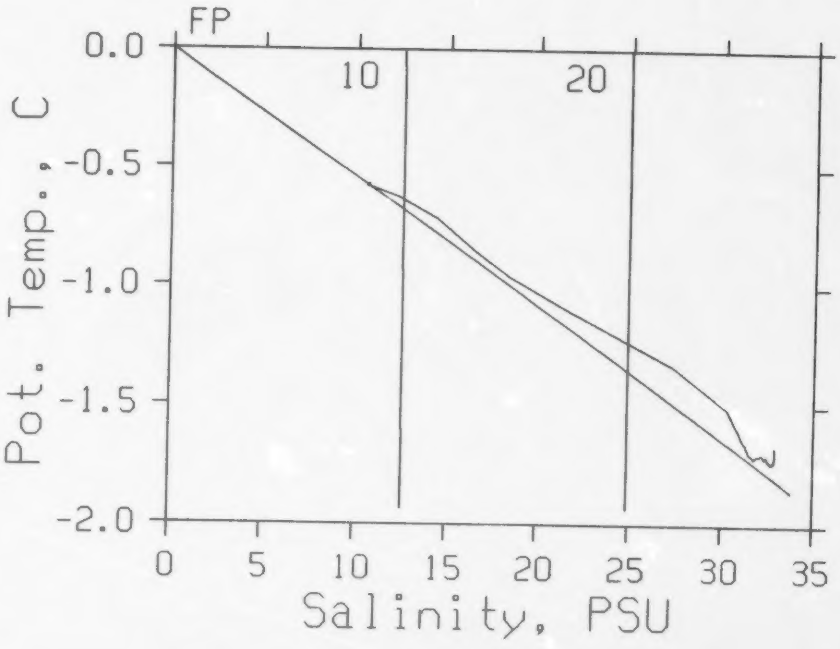




NOGAP ICEWORK 1991
STATION : HI01
REFERENCE NO.: 91-09-072
DATE/TIME : 11/05/91 13:10 MDT
POSITION : 69-28.0N 138-50.6W

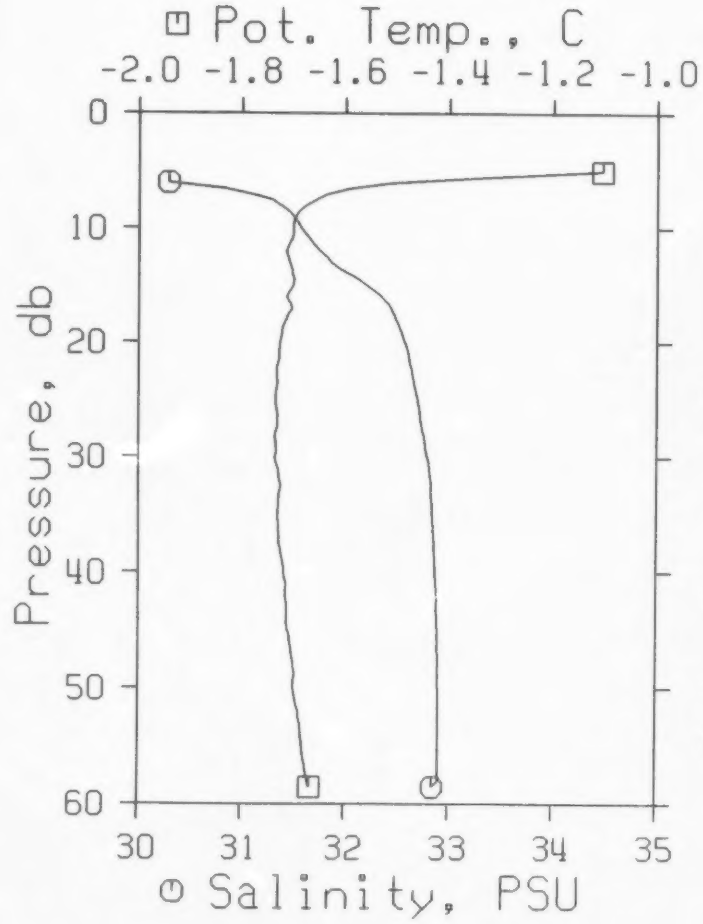
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.577	-.577	10.567	8.42	1901.5	.38	.00	1414
4	4	-.853	-.853	16.479	13.19	1434.4	.73	.01	1420
6	6	-1.510	-1.510	30.285	24.37	357.3	.91	.02	1436
8	8	-1.675	-1.675	31.373	25.26	272.9	.98	.03	1436
10	10	-1.700	-1.700	31.576	25.42	257.1	1.03	.03	1437
15	15	-1.700	-1.700	32.209	25.93	208.3	1.15	.05	1438
20	20	-1.725	-1.725	32.573	26.23	180.1	1.24	.06	1438
25	25	-1.733	-1.733	32.699	26.33	170.4	1.33	.08	1438
30	30	-1.734	-1.735	32.790	26.41	163.3	1.41	.11	1438
35	35	-1.729	-1.730	32.841	26.45	159.4	1.49	.13	1439
60	59	-1.661	-1.662	32.875	26.48	157.0	1.88	.32	1439

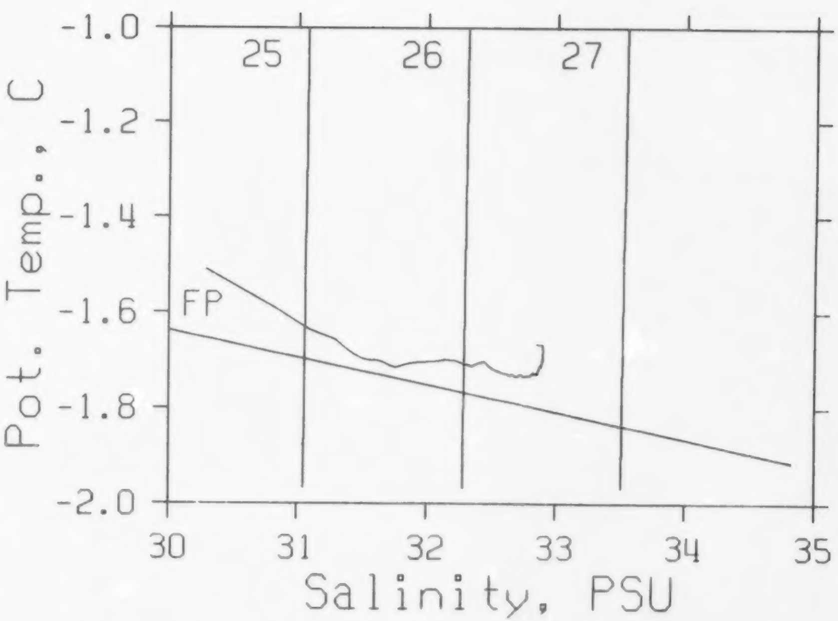




NOGAP ICEWORK 1991
STATION : HI01
REFERENCE NO.: 91-09-072
DATE/TIME : 11/05/91 13:10 MDT
POSITION : 69-28.0N 138-50.6W

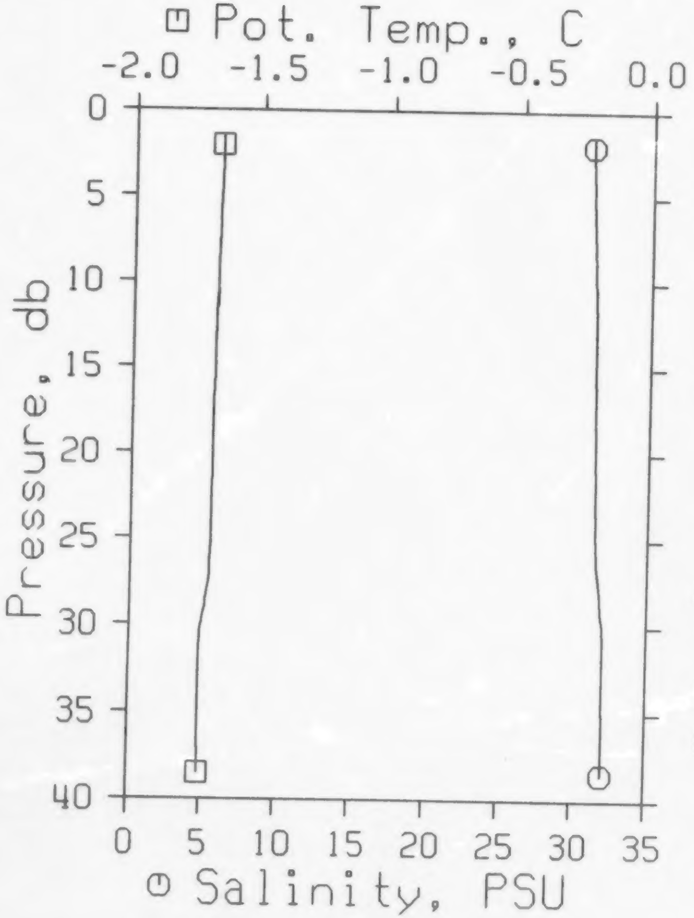
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.577	-.577	10.567	8.42	1901.5	.38	.00	1414
4	4	-.853	-.853	16.479	13.19	1434.4	.73	.01	1420
6	6	-1.510	-1.510	30.285	24.37	357.3	.91	.02	1436
8	8	-1.675	-1.675	31.373	25.26	272.9	.98	.03	1436
10	10	-1.700	-1.700	31.576	25.42	257.1	1.03	.03	1437
15	15	-1.700	-1.700	32.209	25.93	208.3	1.15	.05	1438
20	20	-1.725	-1.725	32.573	26.23	180.1	1.24	.06	1438
25	25	-1.733	-1.733	32.699	26.33	170.4	1.33	.08	1438
30	30	-1.734	-1.735	32.790	26.41	163.3	1.41	.11	1438
35	35	-1.729	-1.730	32.841	26.45	159.4	1.49	.13	1439
60	59	-1.661	-1.662	32.875	26.48	157.0	1.88	.32	1439

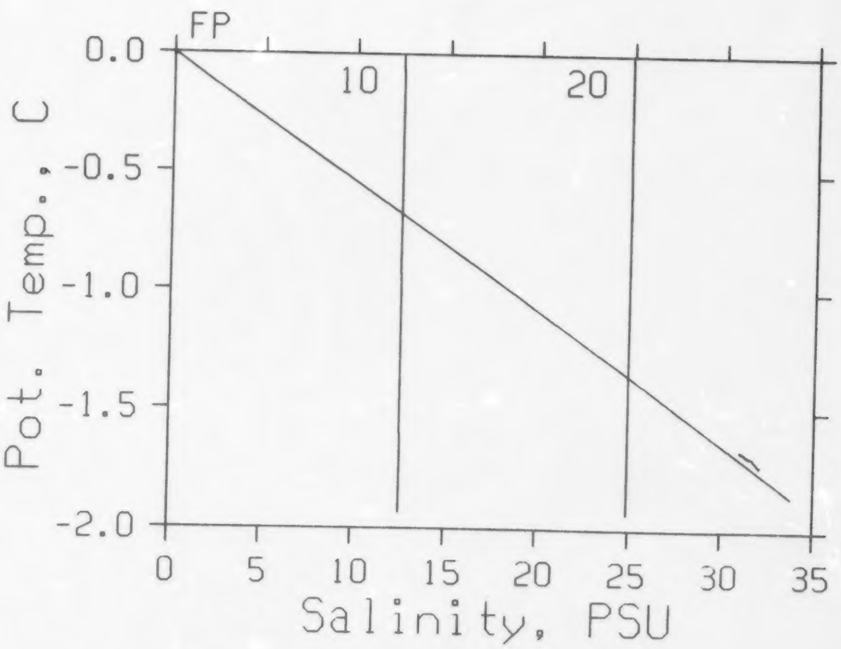




NOGAP ICEWORK 1991
STATION : HI02
REFERENCE NO.: 91-09-073
DATE/TIME : 11/05/91 14:22 MDT
POSITION : 69-36.8N 138-47.8W

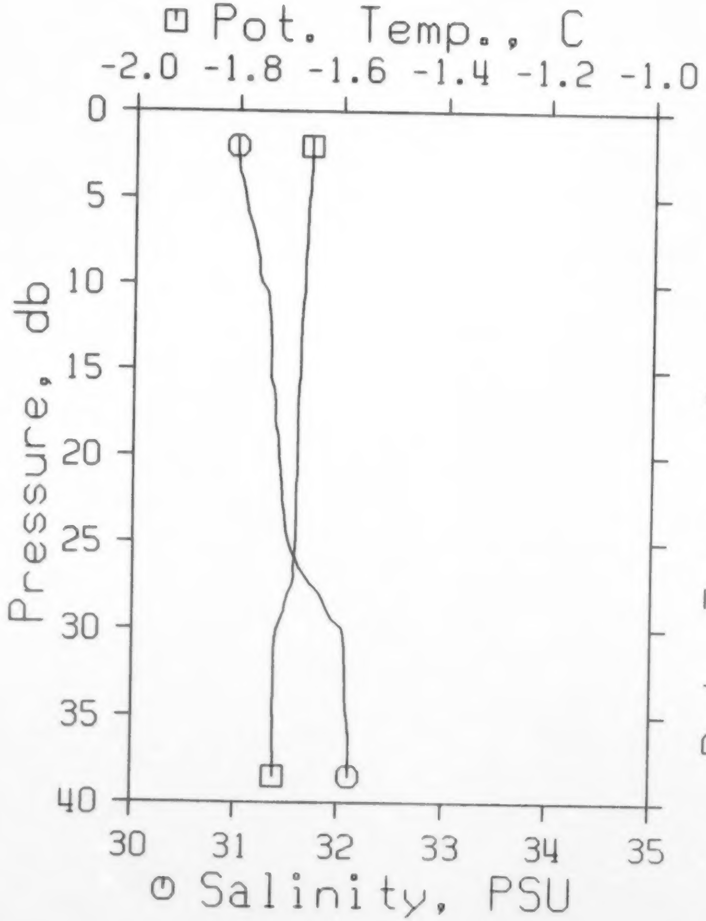
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.660	-1.660	30.987	24.94	302.7	.06	.00	1436
4	4	-1.663	-1.663	31.038	24.98	298.8	.12	.00	1436
6	6	-1.667	-1.667	31.098	25.03	294.2	.18	.01	1436
8	8	-1.669	-1.669	31.181	25.10	287.7	.24	.01	1436
10	10	-1.671	-1.671	31.235	25.14	283.6	.30	.01	1436
15	15	-1.678	-1.678	31.323	25.22	276.7	.43	.03	1437
20	20	-1.682	-1.682	31.410	25.29	270.0	.57	.06	1437
25	25	-1.685	-1.685	31.503	25.36	262.8	.70	.09	1437
30	30	-1.719	-1.719	32.028	25.79	222.2	.83	.12	1438
35	35	-1.725	-1.726	32.086	25.84	217.7	.94	.16	1438
39	38	-1.723	-1.724	32.111	25.86	215.8	1.01	.19	1438

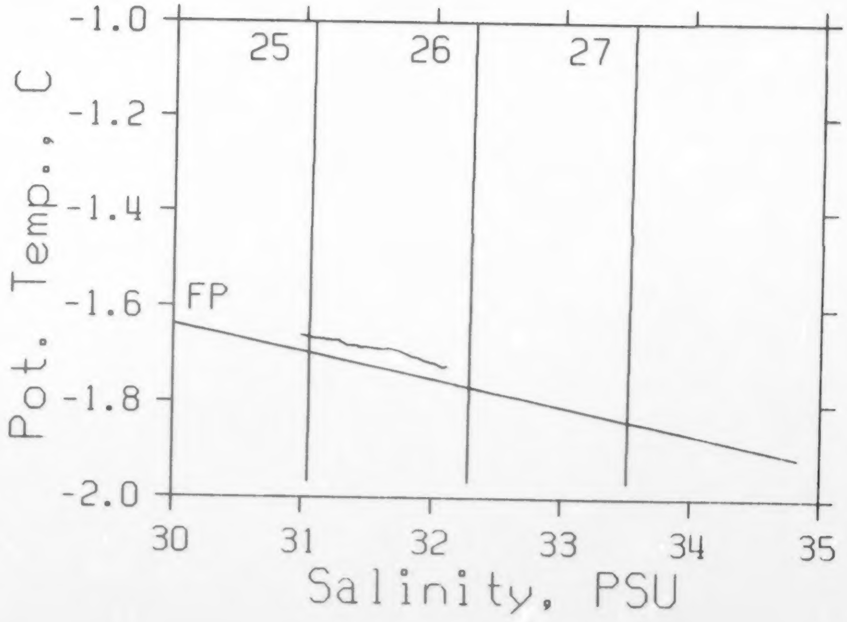




NOGAP ICEWORK 1991
STATION : HI02
REFERENCE NO.: 91-09-073
DATE/TIME : 11/05/91 14:22 MDT
POSITION : 69-36.8N 138-47.8W

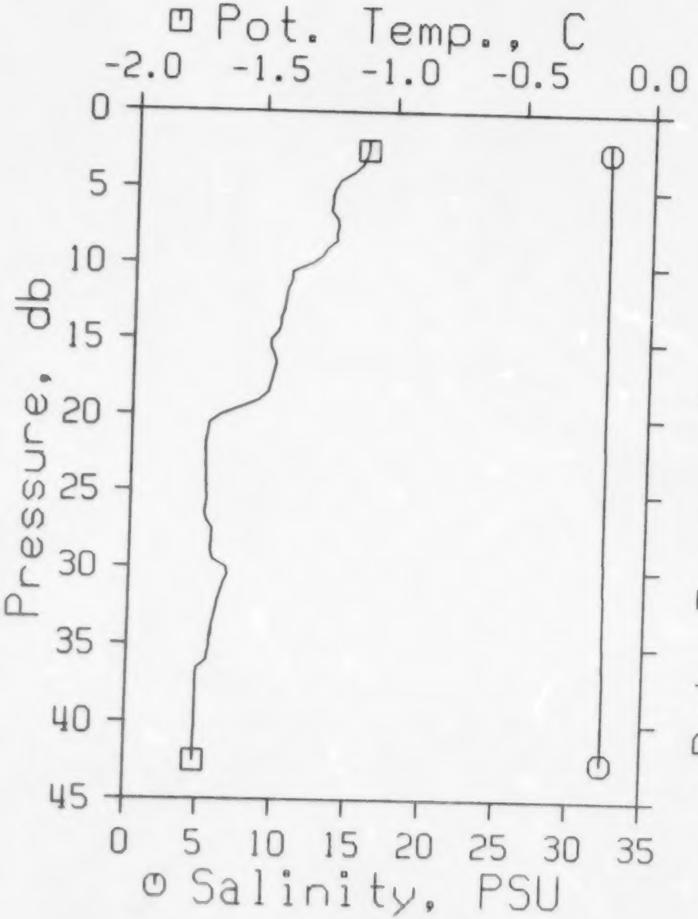
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.660	-1.660	30.987	24.94	302.7	.06	.00	1436
4	4	-1.663	-1.663	31.038	24.98	298.8	.12	.00	1436
6	6	-1.667	-1.667	31.098	25.03	294.2	.18	.01	1436
8	8	-1.669	-1.669	31.181	25.10	287.7	.24	.01	1436
10	10	-1.671	-1.671	31.235	25.14	283.6	.30	.01	1436
15	15	-1.678	-1.678	31.323	25.22	276.7	.43	.03	1437
20	20	-1.682	-1.682	31.410	25.29	270.0	.57	.06	1437
25	25	-1.685	-1.685	31.503	25.36	262.8	.70	.09	1437
30	30	-1.719	-1.719	32.028	25.79	222.2	.83	.12	1438
35	35	-1.725	-1.726	32.086	25.84	217.7	.94	.16	1438
39	38	-1.723	-1.724	32.111	25.86	215.8	1.01	.19	1438

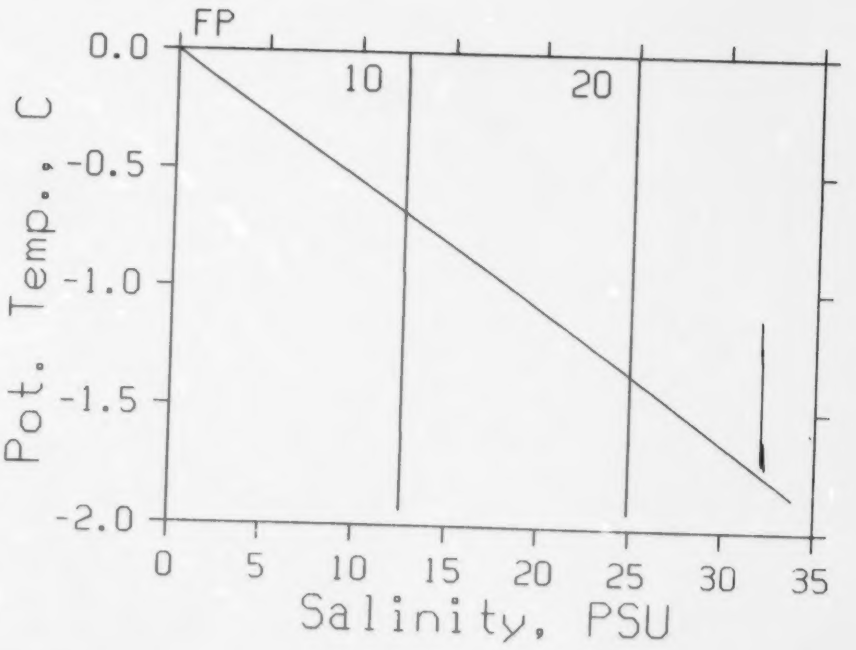




NOGAP ICEWORK 1991
STATION : ISZ1
REFERENCE NO.: 91-09-043
DATE/TIME : 03/05/91 16:46 MDT
POSITION : 70-11.6N 133-40.8W

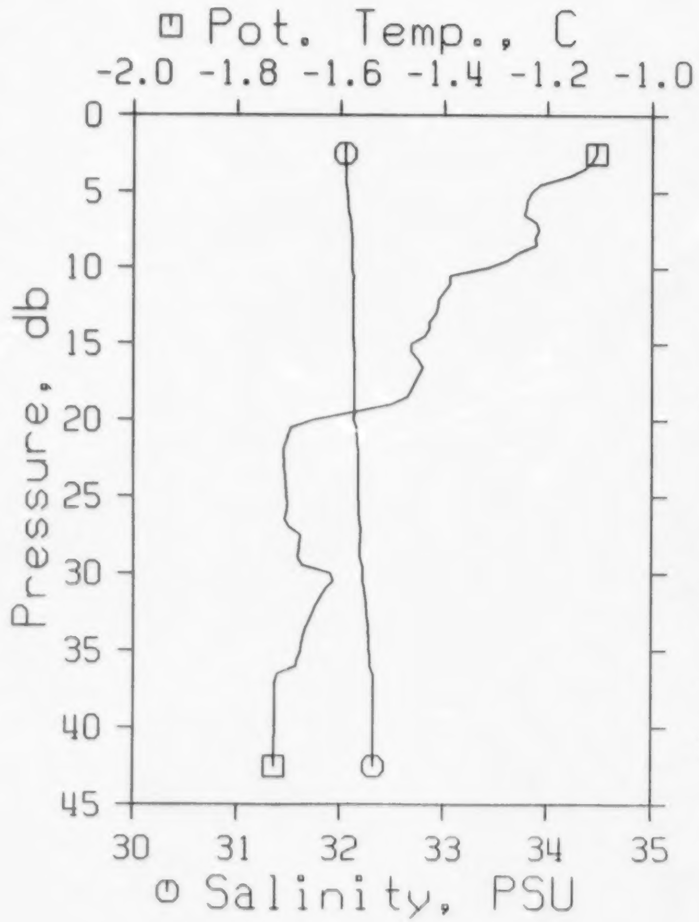
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.106	-1.106	32.044	25.79	222.4	.04	.00	1440
4	4	-1.161	-1.161	32.049	25.79	221.9	.09	.00	1440
6	6	-1.240	-1.240	32.070	25.81	220.0	.13	.00	1439
8	8	-1.224	-1.224	32.112	25.84	216.8	.18	.01	1440
10	10	-1.316	-1.316	32.109	25.84	216.8	.22	.01	1439
15	15	-1.464	-1.464	32.127	25.86	215.1	.33	.02	1439
20	20	-1.651	-1.651	32.124	25.86	214.9	.44	.04	1438
25	25	-1.703	-1.703	32.168	25.90	211.4	.54	.07	1438
30	30	-1.619	-1.619	32.215	25.94	208.0	.65	.10	1438
35	35	-1.675	-1.676	32.278	25.99	203.0	.75	.13	1438
43	42	-1.726	-1.727	32.319	26.02	199.7	.90	.19	1438

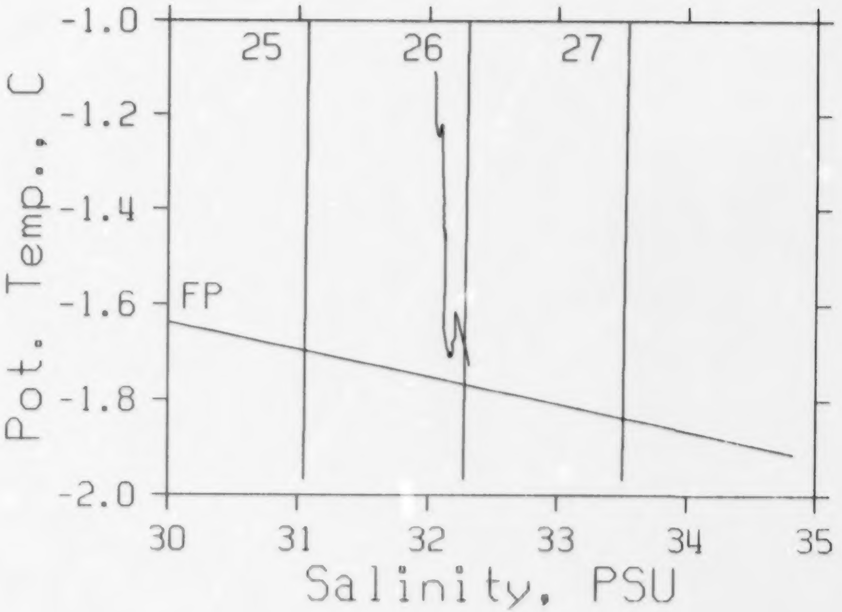




NOGAP ICEWORK 1991
STATION : ISZ1
REFERENCE NO.: 91-09-043
DATE/TIME : 03/05/91 16:46 MDT
POSITION : 70-11.6N 133-40.8W

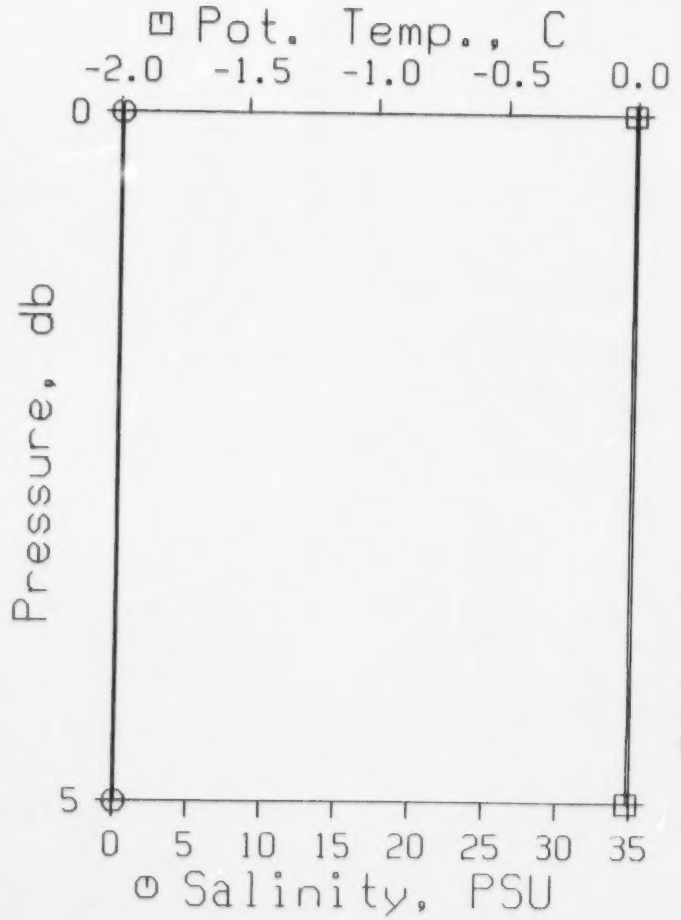
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.106	-1.106	32.044	25.79	222.4	.04	.00	1440
4	4	-1.161	-1.161	32.049	25.79	221.9	.09	.00	1440
6	6	-1.240	-1.240	32.070	25.81	220.0	.13	.00	1439
8	8	-1.224	-1.224	32.112	25.84	216.8	.18	.01	1440
10	10	-1.316	-1.316	32.109	25.84	216.8	.22	.01	1439
15	15	-1.464	-1.464	32.127	25.86	215.1	.33	.02	1439
20	20	-1.651	-1.651	32.124	25.86	214.9	.44	.04	1438
25	25	-1.703	-1.703	32.168	25.90	211.4	.54	.07	1438
30	30	-1.619	-1.619	32.215	25.94	208.0	.65	.10	1438
35	35	-1.675	-1.676	32.278	25.99	203.0	.75	.13	1438
43	42	-1.726	-1.727	32.319	26.02	199.7	.90	.19	1438

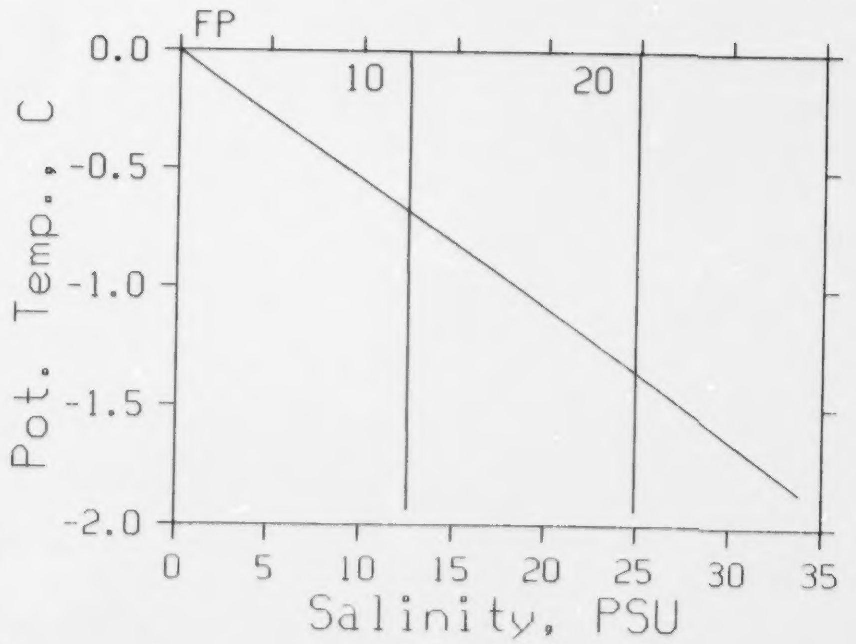




NOGAP ICEWORK 1991
STATION : KITI
REFERENCE NO.: 91-09-012
DATE/TIME : 27/04/91 21:33 MDT
POSITION : 69-22.6N 133-41.7W

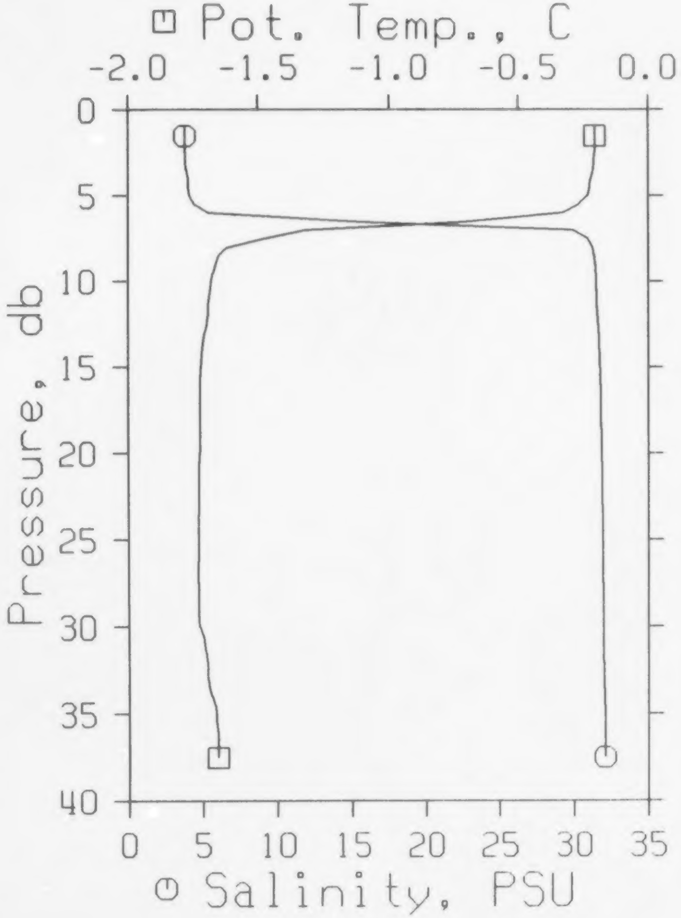
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.009	-.009	.146	-.01	2737.6	.55	.01	1403
4	4	-.009	-.009	.146	-.01	2737.6	1.09	.02	1403
5	5	-.010	-.010	.145	-.01	2737.7	1.37	.03	1403

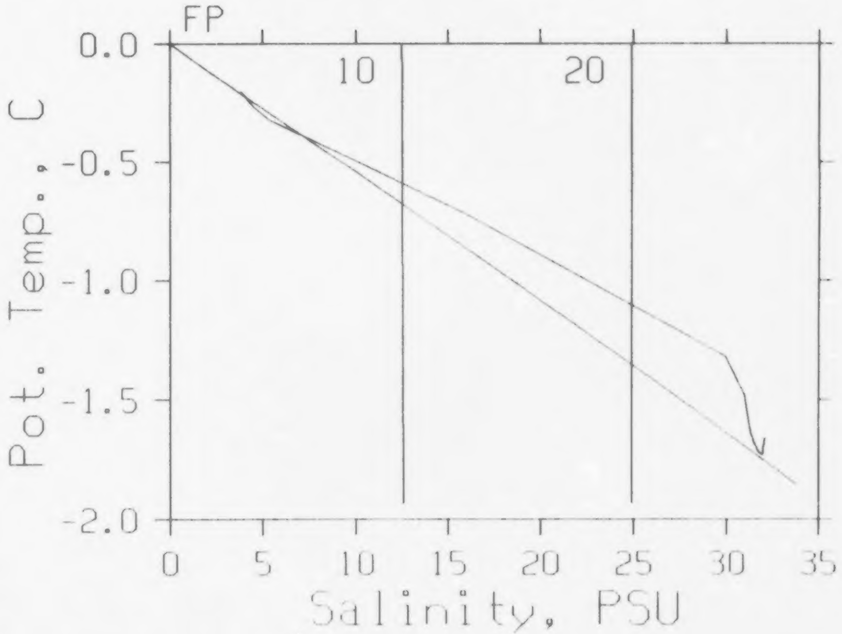




NOGAP ICEWORK 1991
STATION : KP01
REFERENCE NO.: 91-09-074
DATE/TIME : 11/05/91 15:14 MDT
POSITION : 69-18.8N 138-10.5W

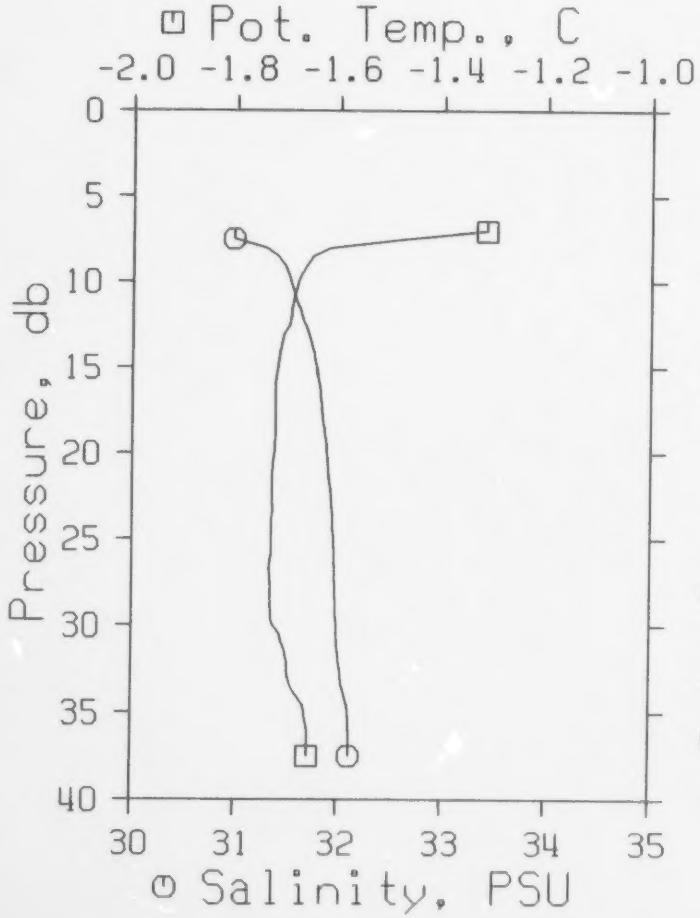
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.203	-.203	3.841	2.99	2438.4	.49	.00	1407
4	4	-.220	-.220	4.056	3.16	2421.2	.97	.02	1407
6	6	-.326	-.326	5.467	4.30	2308.1	1.45	.04	1408
8	8	-1.619	-1.619	31.287	25.18	279.6	1.63	.06	1437
10	10	-1.680	-1.680	31.527	25.38	261.0	1.68	.06	1437
15	15	-1.718	-1.718	31.783	25.59	241.1	1.81	.08	1437
20	20	-1.724	-1.724	31.885	25.67	233.2	1.92	.10	1437
25	25	-1.729	-1.729	31.955	25.73	227.8	2.04	.12	1437
30	30	-1.725	-1.725	31.986	25.75	225.4	2.15	.16	1437
35	35	-1.662	-1.663	32.104	25.85	216.4	2.26	.19	1438
38	37	-1.657	-1.658	32.114	25.86	215.7	2.32	.21	1438

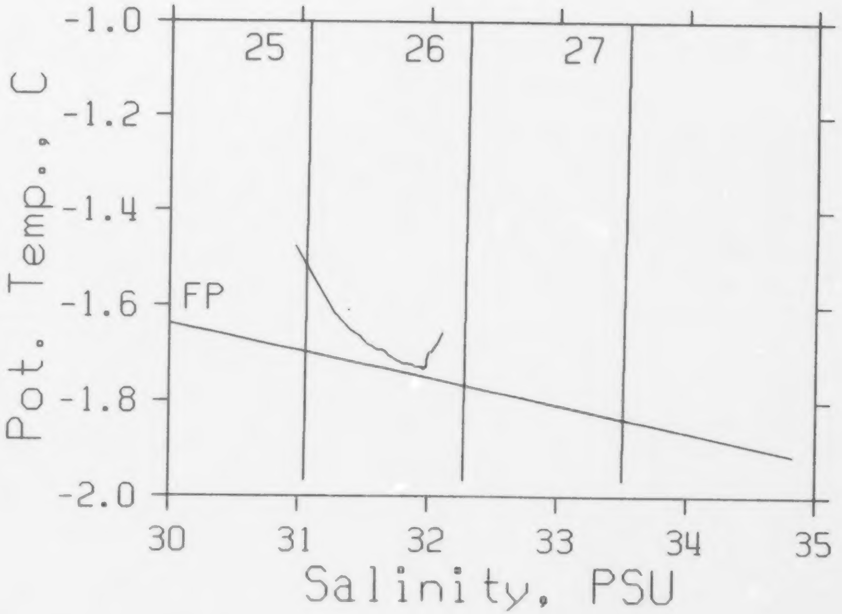




NOGAP ICEWORK 1991
STATION : KP01
REFERENCE NO.: 91-09-074
DATE/TIME : 11/05/91 15:14 MDT
POSITION : 69-18.8N 138-10.5W

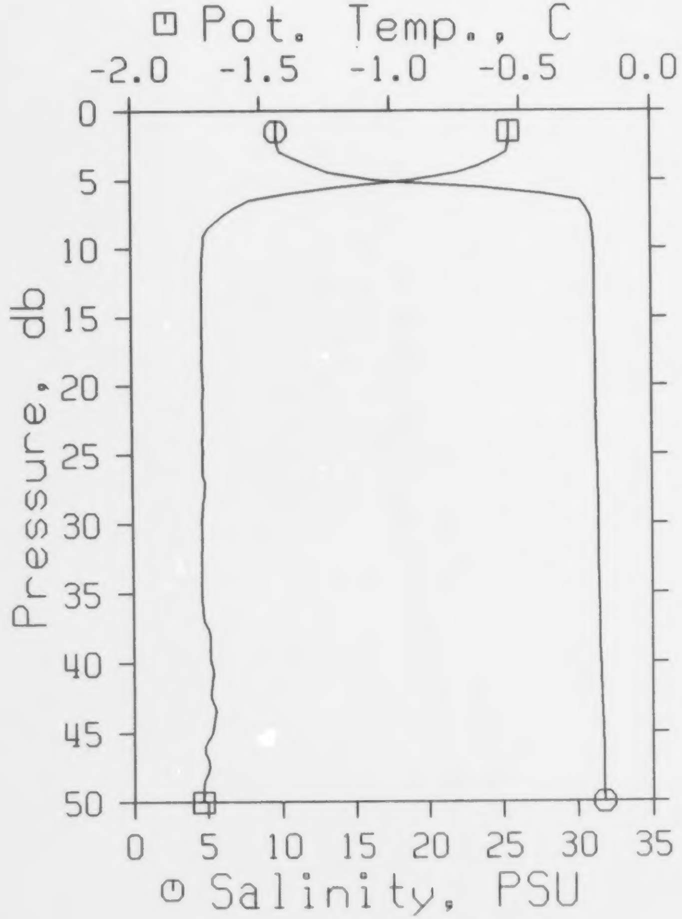
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.203	-.203	3.841	2.99	2438.4	.49	.00	1407
4	4	-.220	-.220	4.056	3.16	2421.2	.97	.02	1407
6	6	-.326	-.326	5.467	4.30	2308.1	1.45	.04	1408
8	8	-1.619	-1.619	31.287	25.18	279.6	1.63	.06	1437
10	10	-1.680	-1.680	31.527	25.38	261.0	1.68	.06	1437
15	15	-1.718	-1.718	31.783	25.59	241.1	1.81	.08	1437
20	20	-1.724	-1.724	31.885	25.67	233.2	1.92	.10	1437
25	25	-1.729	-1.729	31.955	25.73	227.8	2.04	.12	1437
30	30	-1.725	-1.725	31.986	25.75	225.4	2.15	.16	1437
35	35	-1.662	-1.663	32.104	25.85	216.4	2.26	.19	1438
38	37	-1.657	-1.658	32.114	25.86	215.7	2.32	.21	1438

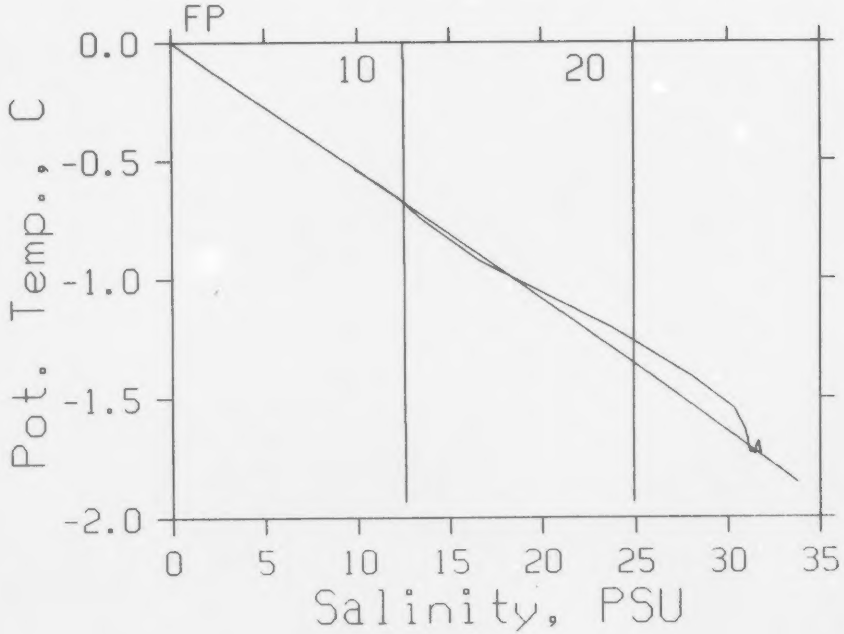




NOGAP ICEWORK 1991
STATION : KP02
REFERENCE NO.: 91-09-075
DATE/TIME : 11/05/91 16:10 MDT
POSITION : 69-23.9N 138- 7.5W

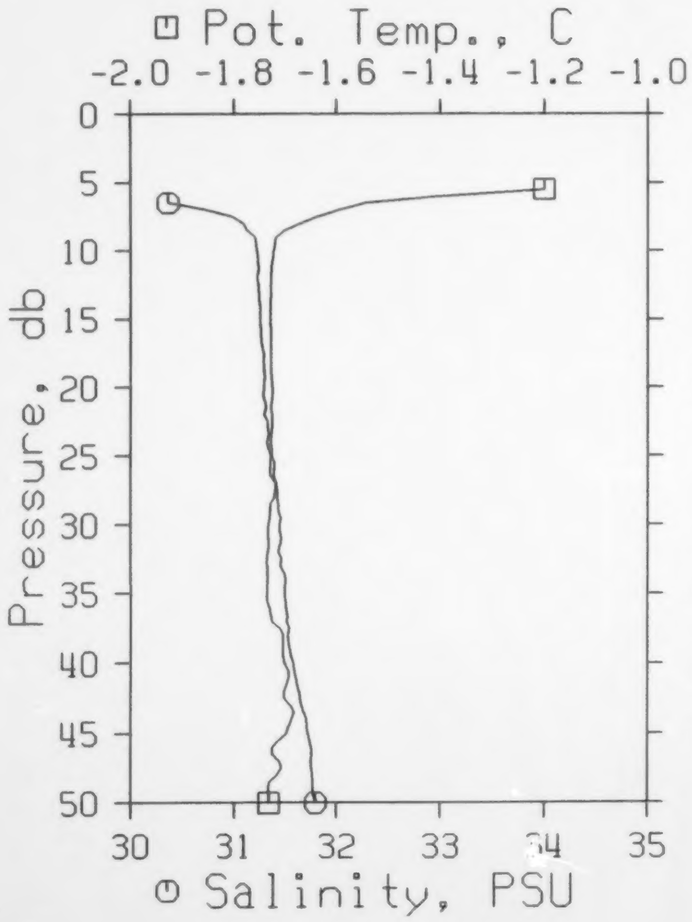
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.540	-.540	9.863	7.85	1957.4	.39	.00	1413
4	4	-.656	-.656	12.197	9.73	1772.3	.77	.02	1416
6	6	-1.260	-1.260	24.898	20.00	775.7	1.00	.03	1430
6	6	-1.405	-1.405	27.940	22.47	539.0	1.03	.03	1433
8	8	-1.670	-1.670	31.099	25.03	294.1	1.10	.03	1436
10	10	-1.722	-1.722	31.231	25.14	283.8	1.16	.04	1436
15	15	-1.728	-1.728	31.259	25.16	281.6	1.30	.06	1436
20	20	-1.724	-1.724	31.299	25.20	278.5	1.44	.08	1436
25	25	-1.726	-1.726	31.368	25.25	273.2	1.58	.11	1437
30	30	-1.731	-1.731	31.448	25.32	267.0	1.71	.15	1437
35	35	-1.735	-1.735	31.499	25.36	263.0	1.84	.19	1437
51	50	-1.728	-1.729	31.802	25.60	239.6	2.23	.36	1438

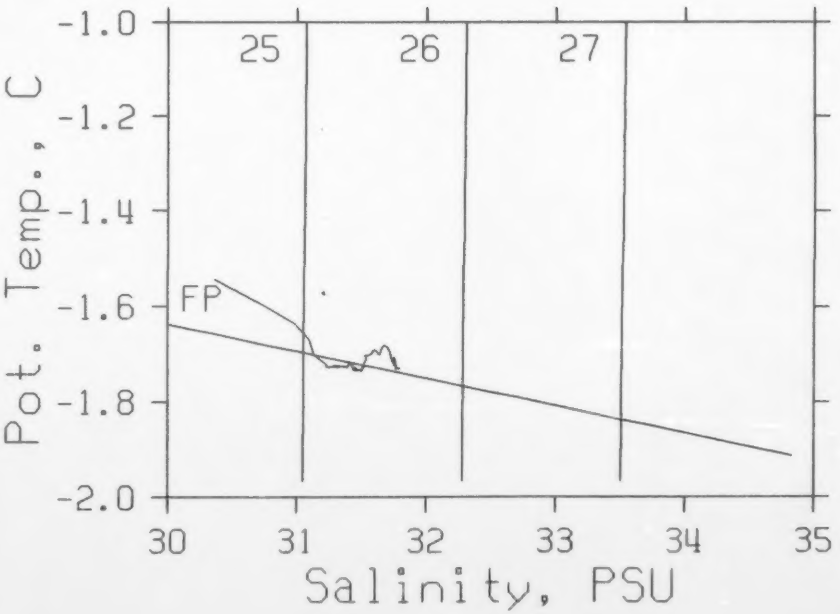




NOGAP ICEWORK 1991
STATION : KP02
REFERENCE NO.: 91-09-075
DATE/TIME : 11/05/91 16:10 MDT
POSITION : 69-23.9N 138- 7.5W

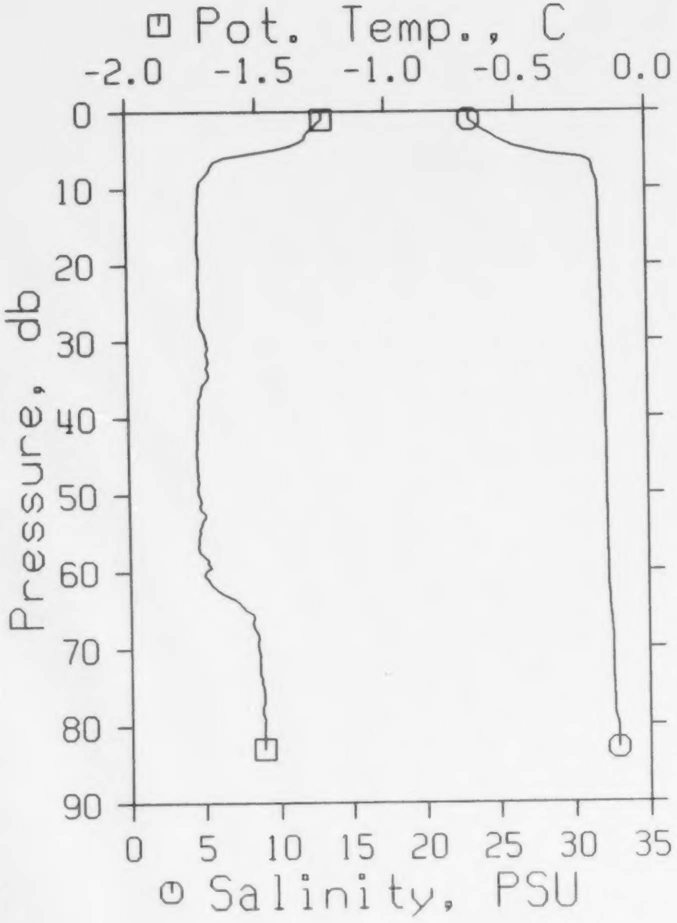
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.540	-.540	9.863	7.85	1957.4	.39	.00	1413
4	4	-.656	-.656	12.197	9.73	1772.3	.77	.02	1416
6	6	-1.260	-1.260	24.898	20.00	775.7	1.00	.03	1430
6	6	-1.405	-1.405	27.940	22.47	539.0	1.03	.03	1433
8	8	-1.670	-1.670	31.099	25.03	294.1	1.10	.03	1436
10	10	-1.722	-1.722	31.231	25.14	283.8	1.16	.04	1436
15	15	-1.728	-1.728	31.259	25.16	281.6	1.30	.06	1436
20	20	-1.724	-1.724	31.299	25.20	278.5	1.44	.08	1436
25	25	-1.726	-1.726	31.368	25.25	273.2	1.58	.11	1437
30	30	-1.731	-1.731	31.448	25.32	267.0	1.71	.15	1437
35	35	-1.735	-1.735	31.499	25.36	263.0	1.84	.19	1437
51	50	-1.728	-1.729	31.802	25.60	239.6	2.23	.36	1438

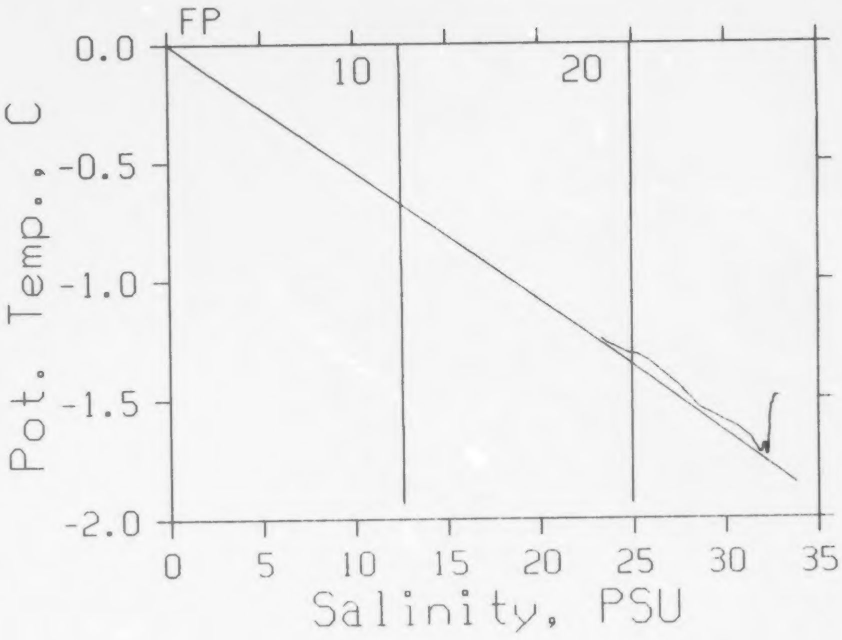




NOGAP ICEWORK 1991
STATION : KP03
REFERENCE NO.: 91-09-076
DATE/TIME : 11/05/91 16:50 MDT
POSITION : 69-30.0N 138- 8.4W

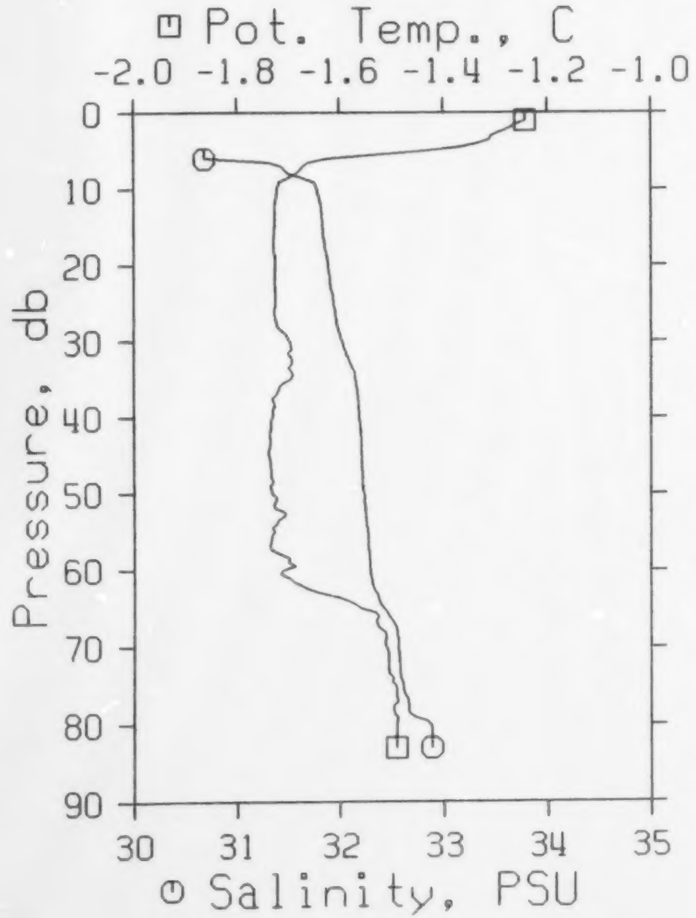
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.273	-1.273	23.841	19.14	857.9	.18	.00	1428
4	4	-1.335	-1.335	25.733	20.68	710.5	.34	.01	1430
6	6	-1.621	-1.621	30.688	24.70	325.9	.45	.01	1436
8	8	-1.684	-1.684	31.512	25.37	262.1	.50	.02	1437
10	10	-1.720	-1.720	31.785	25.59	241.0	.55	.02	1437
15	15	-1.725	-1.725	31.841	25.64	236.6	.67	.04	1437
20	20	-1.724	-1.724	31.894	25.68	232.5	.79	.06	1437
25	25	-1.724	-1.724	31.944	25.72	228.7	.91	.08	1437
30	30	-1.696	-1.696	32.024	25.78	222.6	1.02	.11	1438
35	35	-1.694	-1.695	32.150	25.89	212.8	1.13	.15	1438
83	82	-1.489	-1.491	32.886	26.48	156.5	2.06	.70	1441

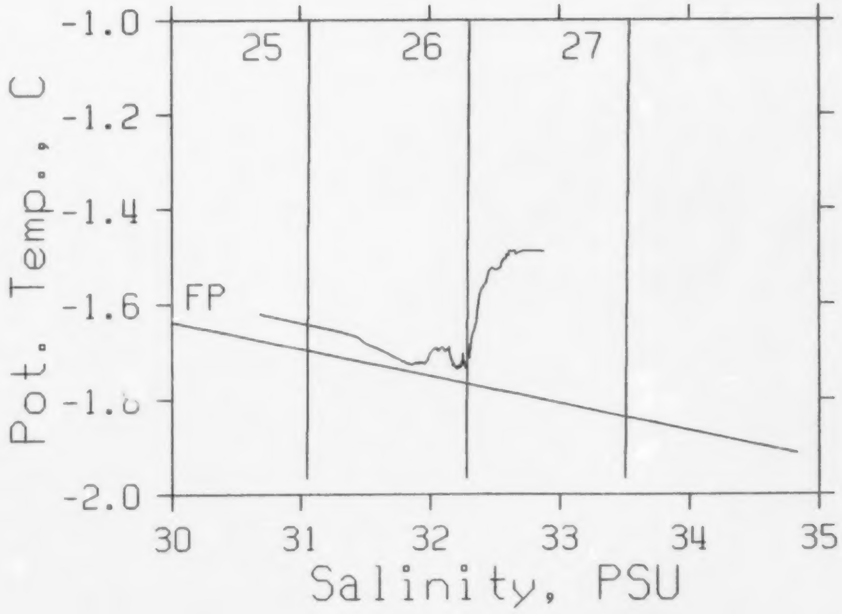




NOGAP ICEWORK 1991
STATION : KP03
REFERENCE NO.: 91-09-076
DATE/TIME : 11/05/91 16:50 MDT
POSITION : 69-30.0N 138- 8.4W

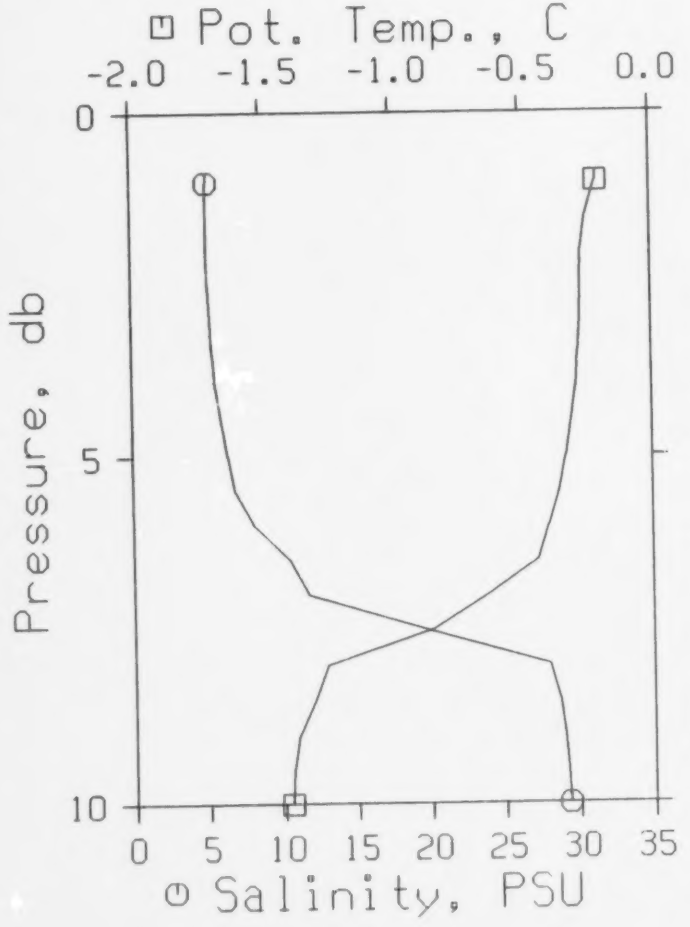
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.273	-1.273	23.841	19.14	857.9	.18	.00	1428
4	4	-1.335	-1.335	25.733	20.68	710.5	.34	.01	1430
6	6	-1.621	-1.621	30.688	24.70	325.9	.45	.01	1436
8	8	-1.684	-1.684	31.512	25.37	262.1	.50	.02	1437
10	10	-1.720	-1.720	31.785	25.59	241.0	.55	.02	1437
15	15	-1.725	-1.725	31.841	25.64	236.6	.67	.04	1437
20	20	-1.724	-1.724	31.894	25.68	232.5	.79	.06	1437
25	25	-1.724	-1.724	31.944	25.72	228.7	.91	.08	1437
30	30	-1.696	-1.696	32.024	25.78	222.6	1.02	.11	1438
35	35	-1.694	-1.695	32.150	25.89	212.8	1.13	.15	1438
83	82	-1.489	-1.491	32.886	26.48	156.5	2.06	.70	1441

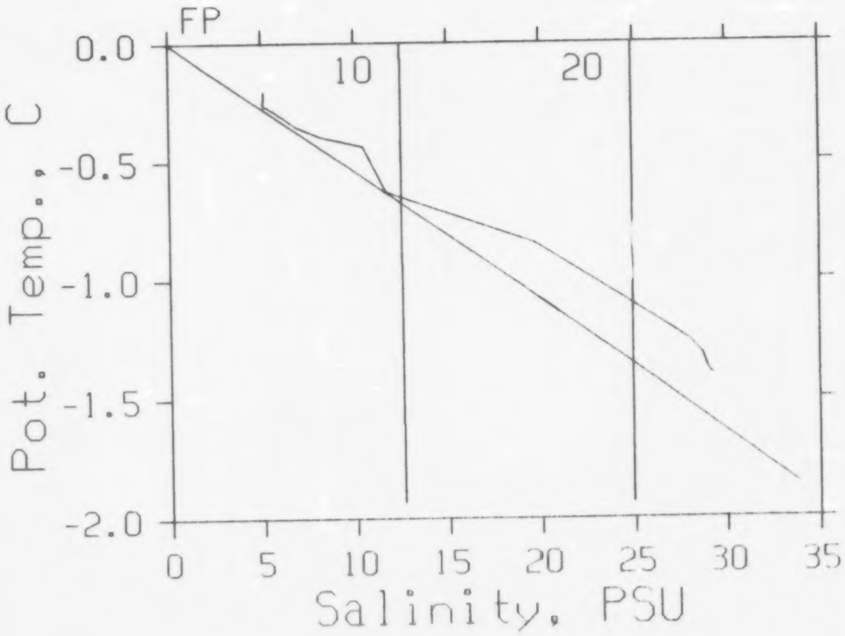




NOGAP ICEWORK 1991
STATION : L001
REFERENCE NO.: 91-09-031
DATE/TIME : 30/04/91 15:54 MDT
POSITION : 69-53.0N 133-60.0W

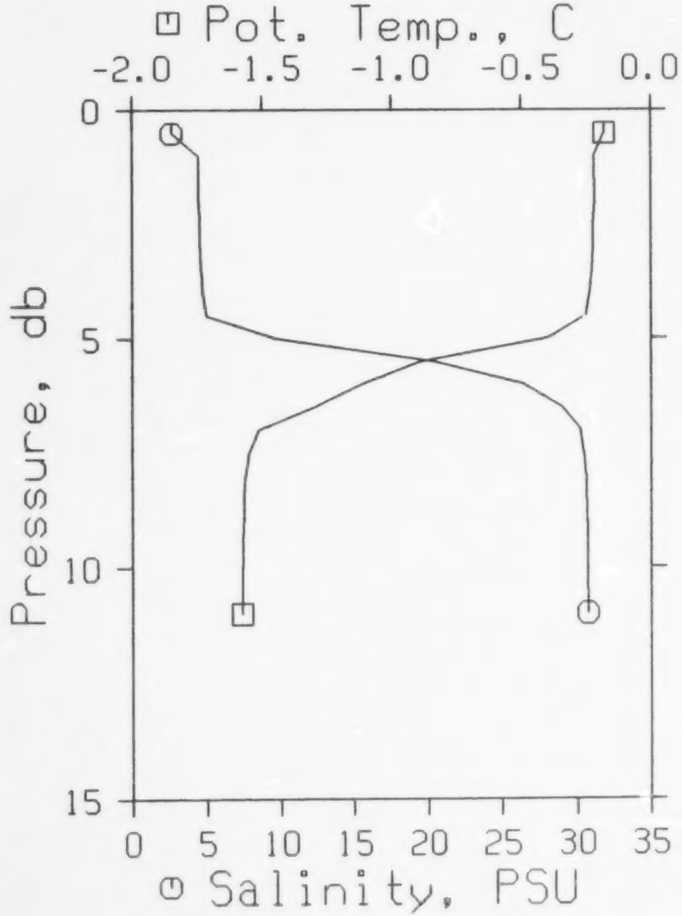
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.263	-.263	5.100	4.01	2337.3	.47	.00	1408
4	4	-.287	-.287	5.655	4.45	2292.8	.93	.02	1409
6	6	-.397	-.397	8.175	6.49	2091.4	1.37	.04	1412
8	8	-1.104	-1.104	24.896	20.00	776.5	1.67	.06	1431
8	8	-1.258	-1.258	28.024	22.53	532.7	1.68	.06	1434
10	10	-1.401	-1.401	29.319	23.58	432.2	1.78	.07	1435

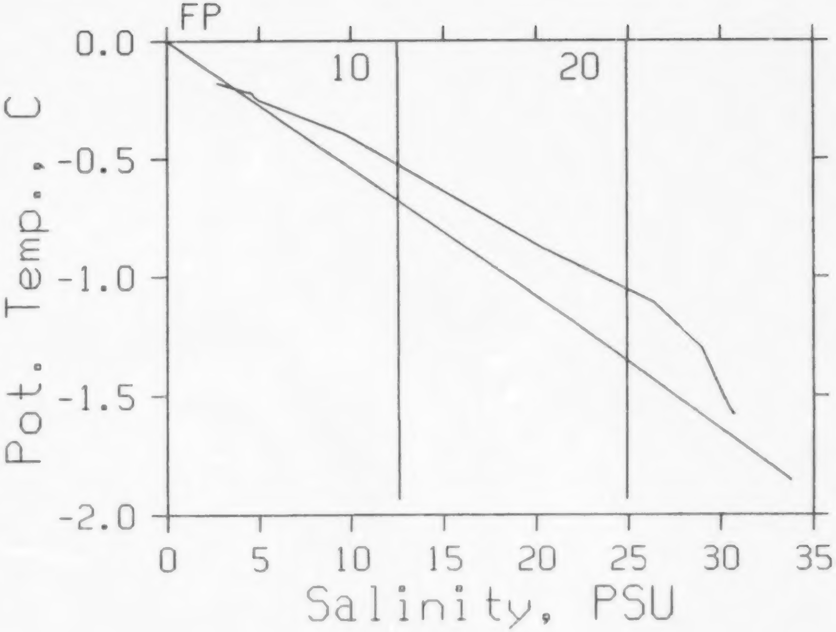




NOGAP ICEWORK 1991
STATION : L002
REFERENCE NO.: 91-09-035
DATE/TIME : 02/05/91 20:31 MDT
POSITION : 69-54.0N 132-13.8W

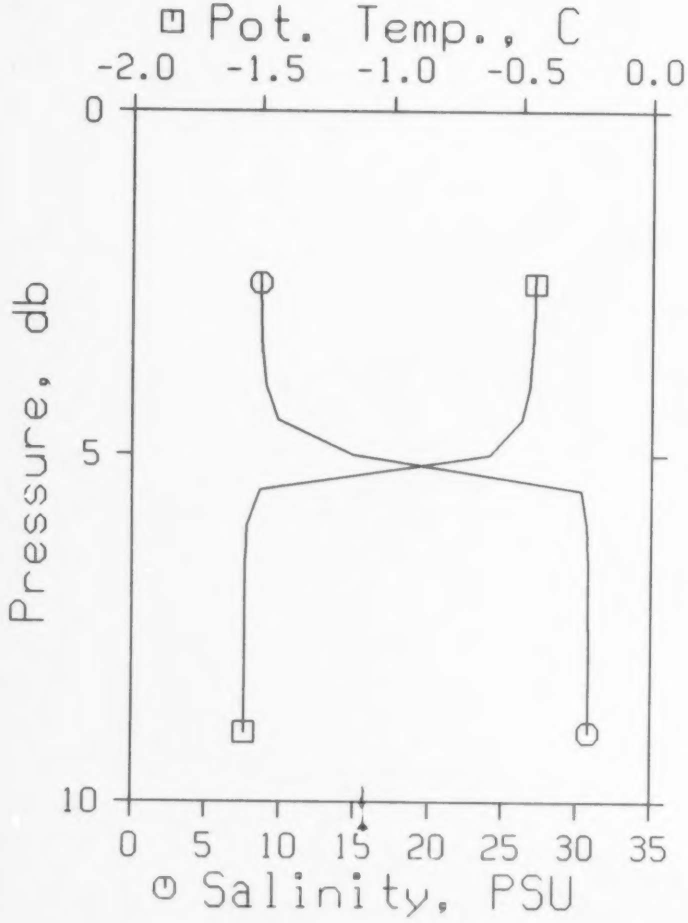
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.216	-.216	4.492	3.52	2386.0	.49	.00	1407
4	4	-.237	-.237	4.727	3.70	2367.2	.96	.02	1408
6	6	-1.053	-1.053	24.898	20.00	775.9	1.30	.04	1431
6	6	-1.109	-1.109	26.369	21.19	661.2	1.31	.04	1432
8	8	-1.566	-1.566	30.619	24.64	331.4	1.39	.04	1436
10	10	-1.576	-1.576	30.715	24.72	323.9	1.46	.05	1436
11	11	-1.579	-1.579	30.753	24.75	321.0	1.49	.05	1436

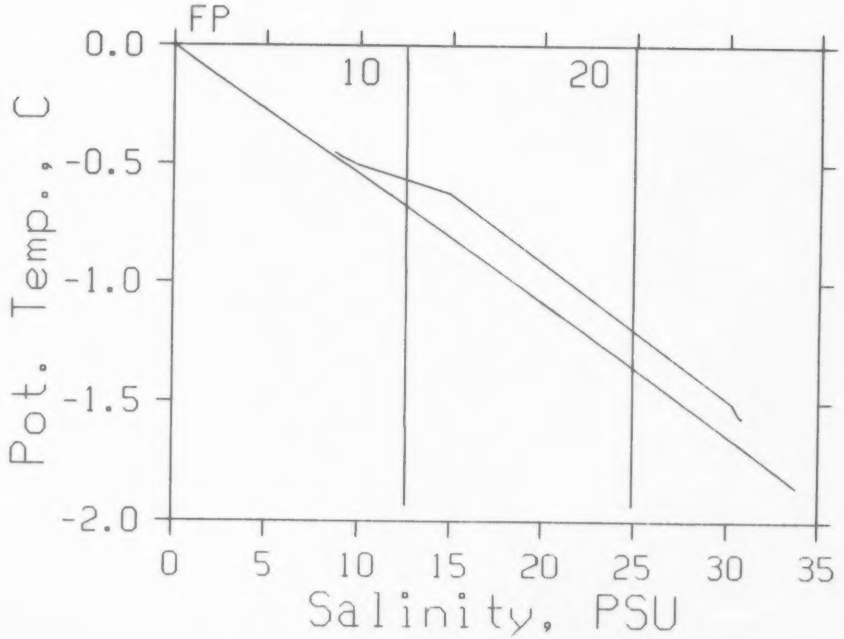




NOGAP ICEWORK 1991
STATION : L003
REFERENCE NO.: 91-09-058
DATE/TIME : 07/05/91 11:12 MDT
POSITION : 70-16.3N 130-29.7W

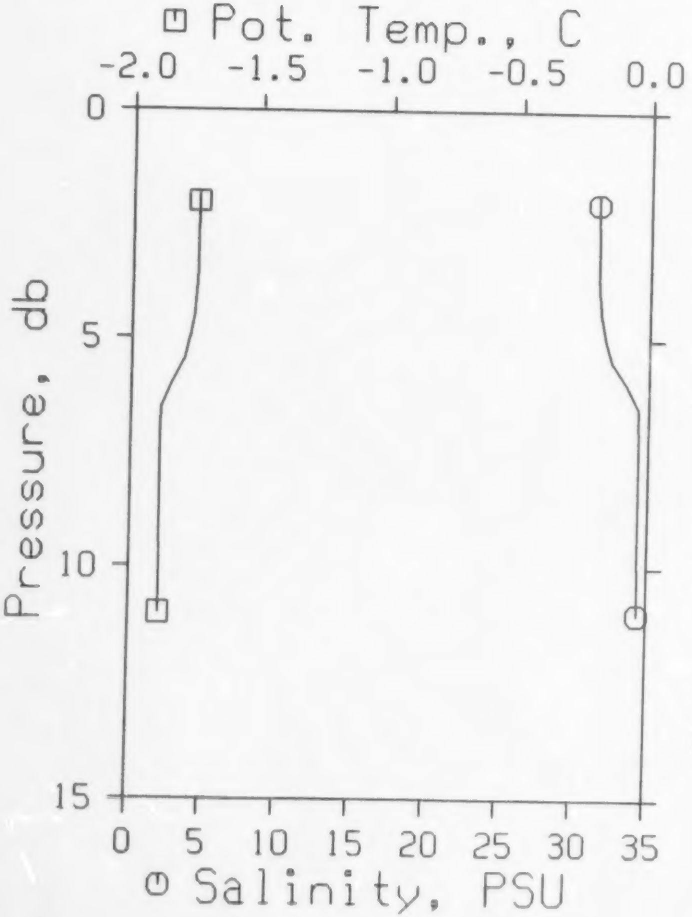
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.450	-.450	8.655	6.88	2053.3	.41	.01	1412
4	4	-.469	-.469	9.038	7.19	2022.8	.82	.02	1412
6	6	-1.555	-1.555	30.677	24.69	326.9	1.07	.03	1436
8	8	-1.564	-1.564	30.821	24.81	315.7	1.14	.03	1436
9	9	-1.563	-1.563	30.834	24.82	314.7	1.17	.04	1436

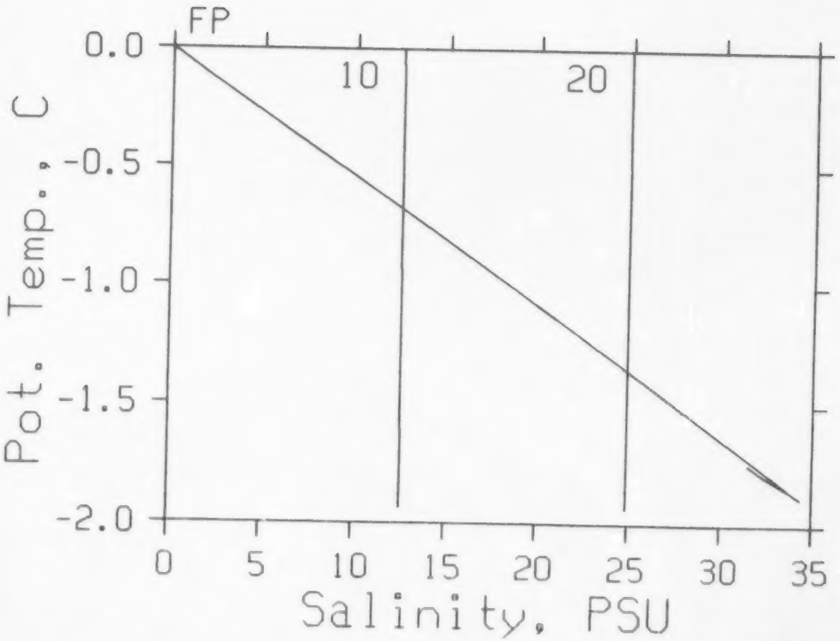




NOGAP ICEWORK 1991
STATION : LB01
REFERENCE NO.: 91-09-047
DATE/TIME : 06/04/91 12:10 MDT
POSITION : 70-15.0N 128-52.4W

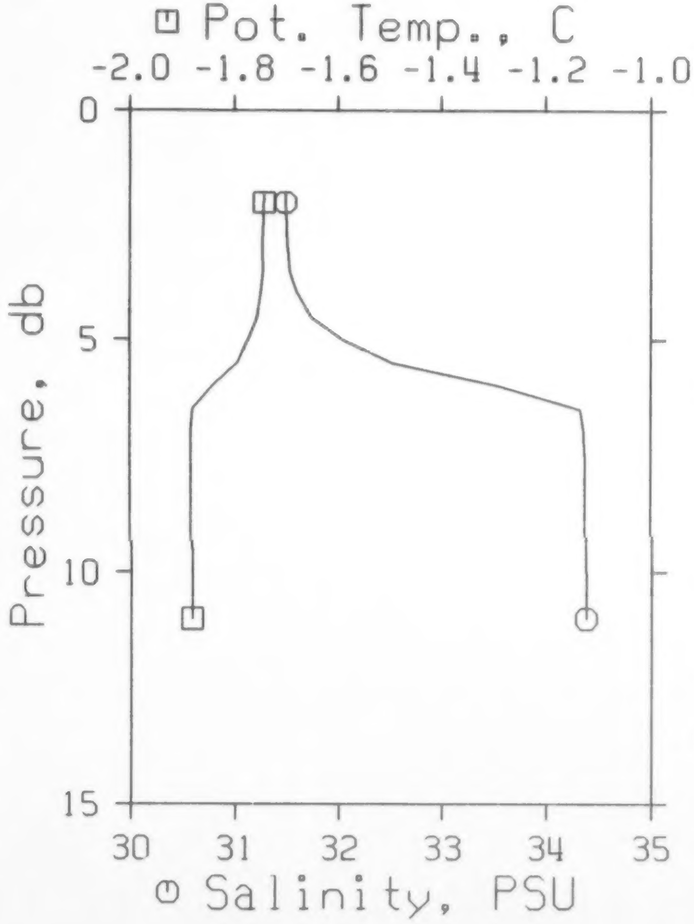
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.743	-1.743	31.489	25.35	263.8	.05	.00	1436
4	4	-1.749	-1.749	31.607	25.45	254.7	.10	.00	1436
6	6	-1.840	-1.840	33.550	27.03	104.5	.15	.00	1439
8	8	-1.883	-1.883	34.377	27.70	40.7	.16	.00	1440
10	10	-1.882	-1.882	34.378	27.70	40.6	.16	.01	1440
11	11	-1.881	-1.881	34.383	27.71	40.2	.17	.01	1440

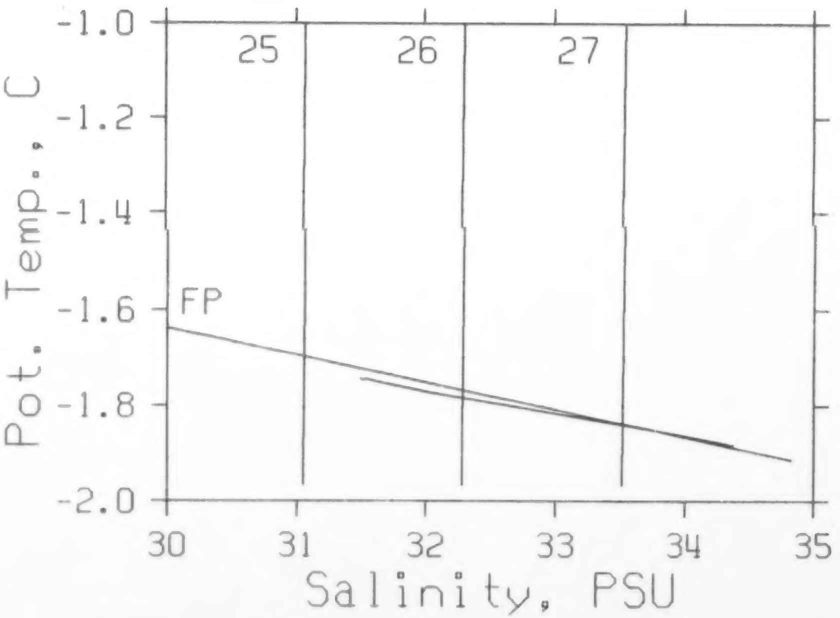




NOGAP ICEWORK 1991
STATION : LB01
REFERENCE NO.: 91-09-047
DATE/TIME : 06/04/91 12:10 MDT
POSITION : 70-15.0N 128-52.4W

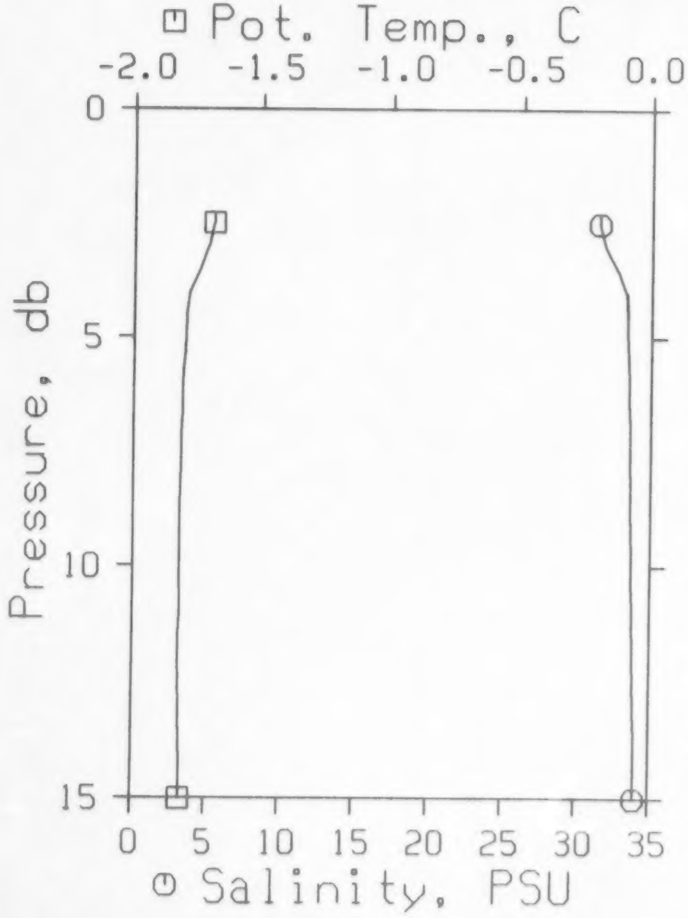
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.743	-1.743	31.489	25.35	263.8	.05	.00	1436
4	4	-1.749	-1.749	31.607	25.45	254.7	.10	.00	1436
6	6	-1.840	-1.840	33.550	27.03	104.5	.15	.00	1439
8	8	-1.883	-1.883	34.377	27.70	40.7	.16	.00	1440
10	10	-1.882	-1.882	34.378	27.70	40.6	.16	.01	1440
11	11	-1.881	-1.881	34.383	27.71	40.2	.17	.01	1440

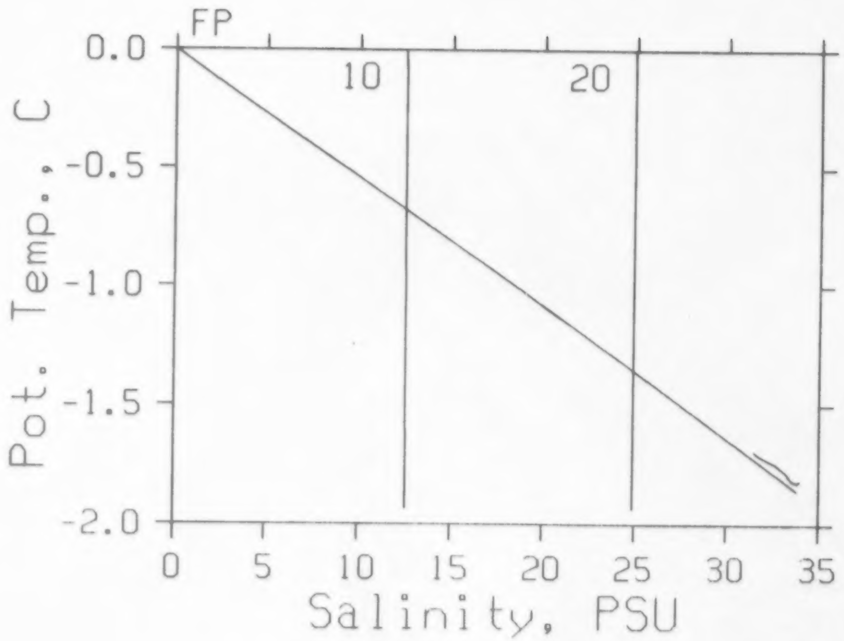




NOGAP ICEWORK 1991
STATION : LB02
REFERENCE NO.: 91-09-064
DATE/TIME : 10/05/91 12:13 MDT
POSITION : 69-59.8N 129-10.4W

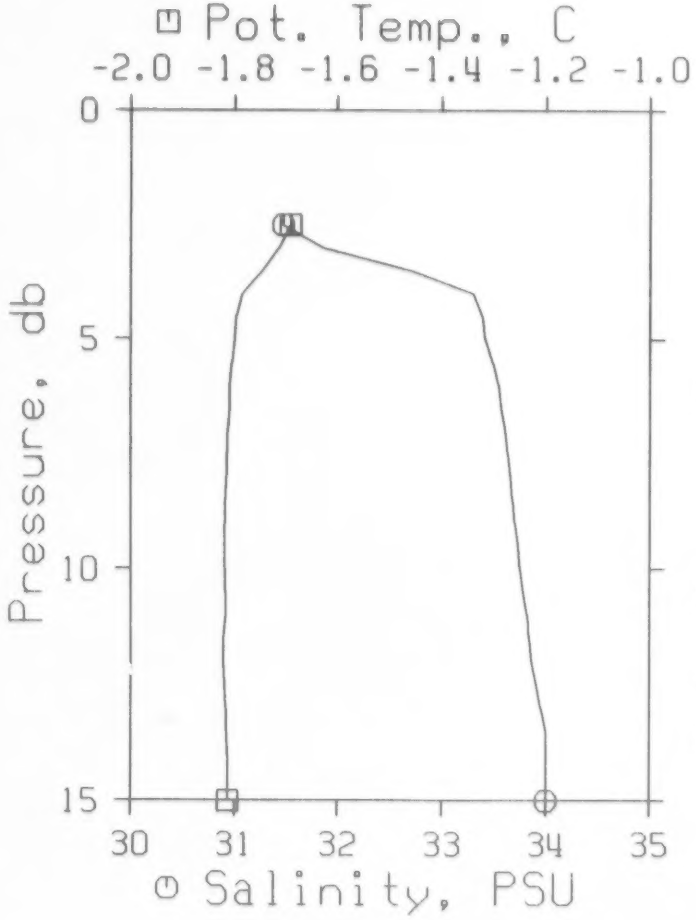
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.691	-1.691	31.475	25.34	265.0	.05	.00	1436
4	4	-1.784	-1.784	33.297	26.82	124.1	.10	.00	1439
6	6	-1.809	-1.809	33.540	27.02	105.3	.12	.00	1439
8	8	-1.815	-1.815	33.653	27.11	96.6	.14	.00	1439
10	10	-1.818	-1.818	33.749	27.19	89.2	.16	.01	1439
15	15	-1.812	-1.812	33.995	27.39	70.3	.20	.01	1440

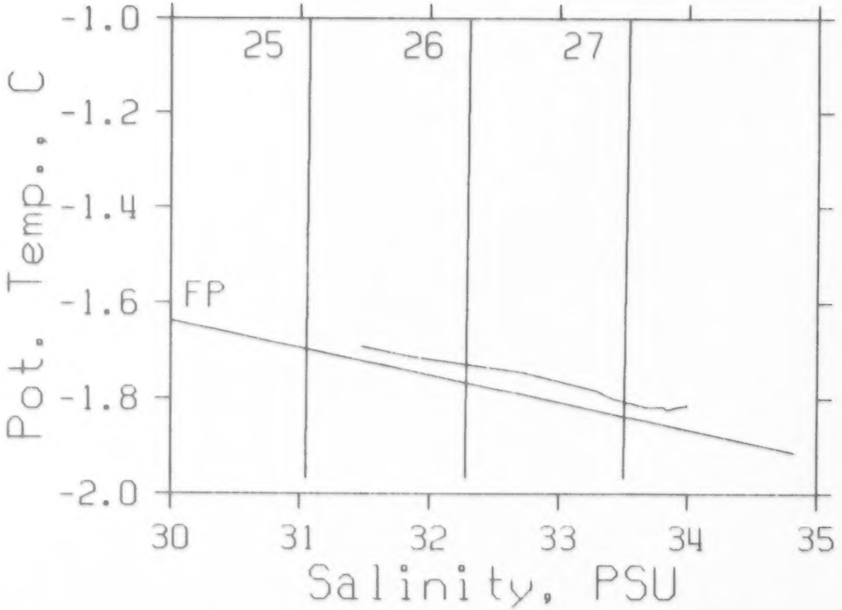




NOGAP ICEWORK 1991
STATION : LB02
REFERENCE NO.: 91-09-064
DATE/TIME : 10/05/91 12:13 MDT
POSITION : 69-59.8N 129-10.4W

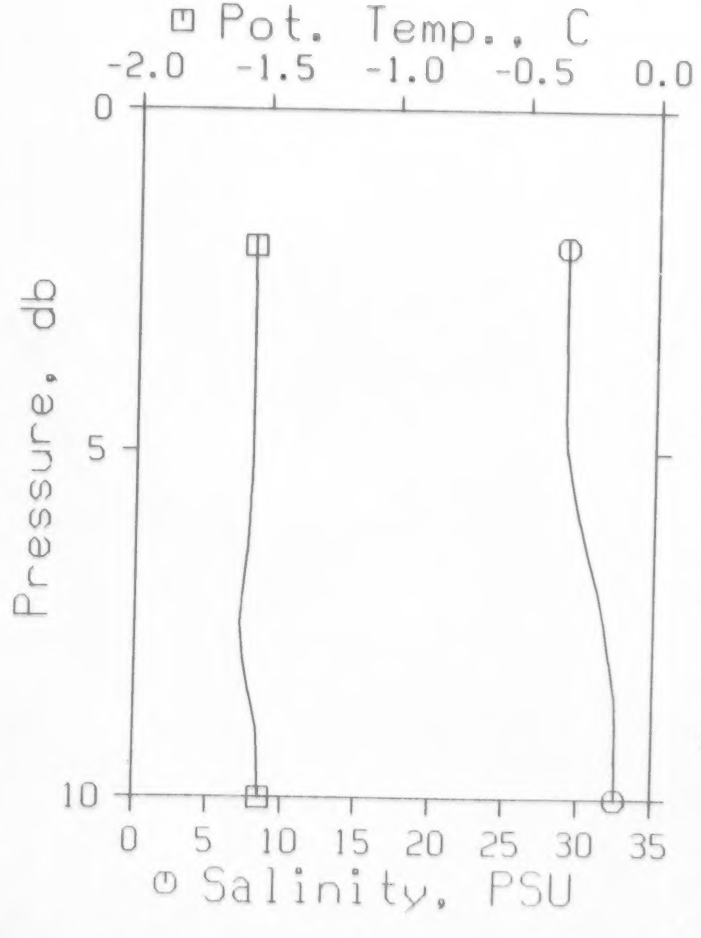
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.691	-1.691	31.475	25.34	265.0	.05	.00	1436
4	4	-1.784	-1.784	33.297	26.82	124.1	.10	.00	1439
6	6	-1.809	-1.809	33.540	27.02	105.3	.12	.00	1439
8	8	-1.815	-1.815	33.653	27.11	96.6	.14	.00	1439
10	10	-1.818	-1.818	33.749	27.19	89.2	.16	.01	1439
15	15	-1.812	-1.812	33.995	27.39	70.3	.20	.01	1440

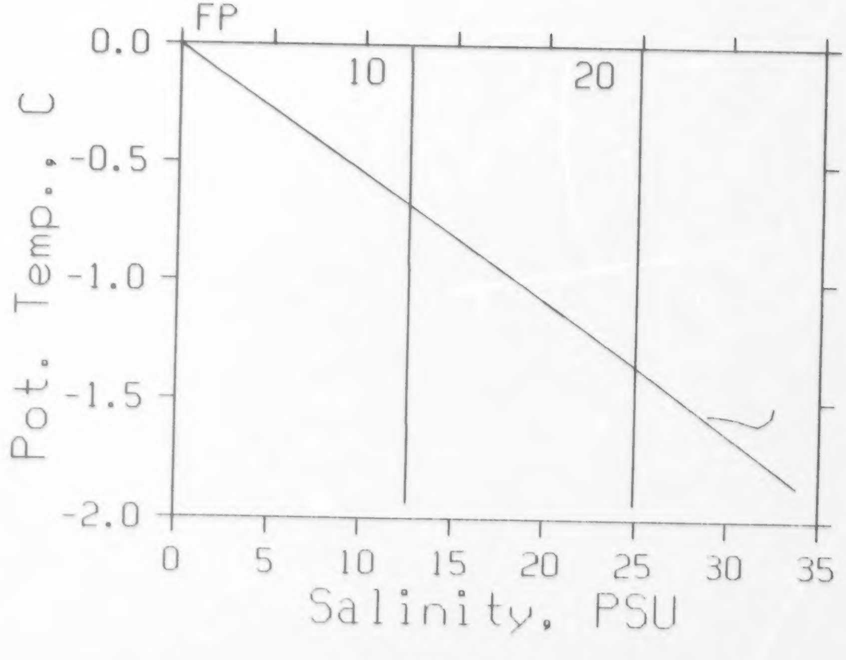




NOGAP ICEWORK 1991
STATION : LB03
REFERENCE NO.: 91-09-063
DATE/TIME : 10/05/91 11:12 MDT
POSITION : 69-42.3N 130-25.8W

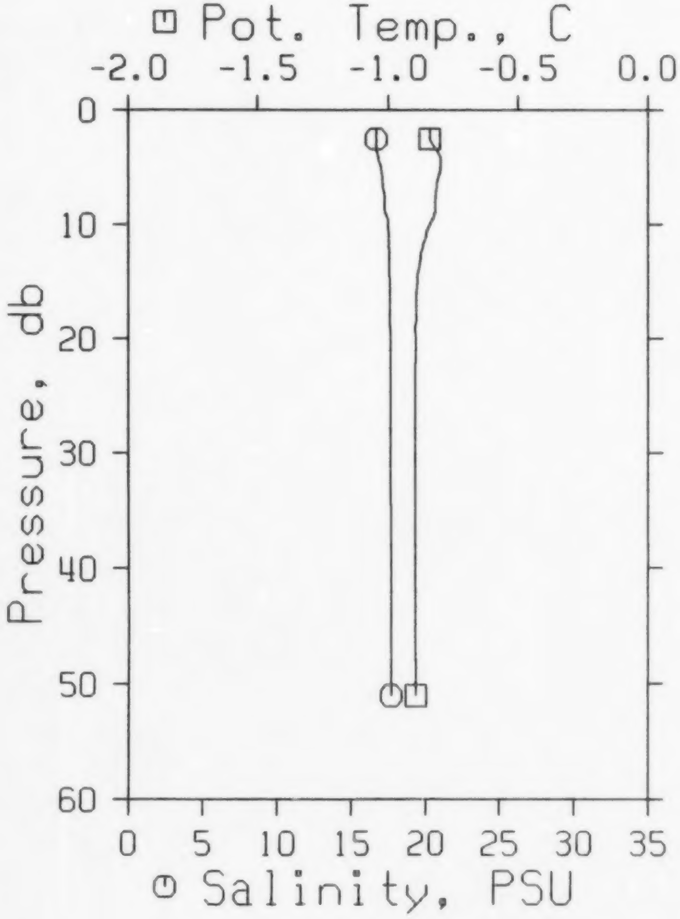
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.554	-1.554	28.920	23.26	462.9	.09	.00	1434
4	4	-1.552	-1.552	28.954	23.29	460.3	.18	.00	1434
6	6	-1.560	-1.560	29.991	24.13	379.9	.27	.01	1435
8	8	-1.581	-1.581	32.056	25.81	220.3	.33	.01	1438
10	10	-1.513	-1.513	32.559	26.22	181.7	.37	.02	1439
11	10	-1.513	-1.513	32.560	26.22	181.6	.38	.02	1439

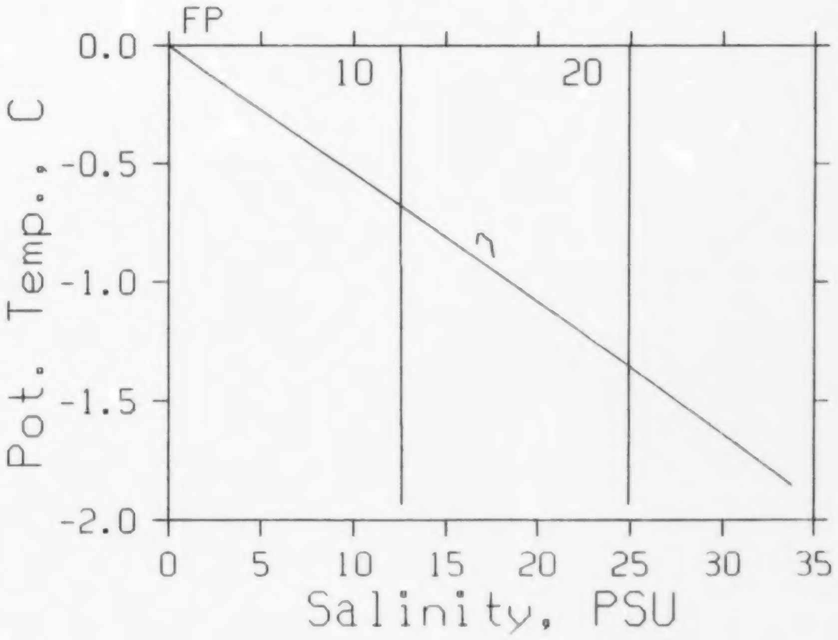




NOGAP ICEWORK 1991
STATION : LB04
REFERENCE NO.: 91-09-062
DATE/TIME : 10/05/91 09:50 MDT
POSITION : 69-30.2N 131-29.8W

PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.839	-.839	16.693	13.36	1417.5	.28	.00	1421
4	4	-.797	-.797	16.820	13.47	1407.4	.57	.01	1421
6	6	-.808	-.808	17.106	13.70	1384.9	.85	.03	1421
8	8	-.819	-.819	17.260	13.82	1372.8	1.12	.05	1422
10	10	-.841	-.841	17.497	14.01	1354.2	1.39	.07	1422
15	15	-.887	-.887	17.591	14.09	1346.9	2.07	.16	1422
20	20	-.895	-.895	17.621	14.11	1344.6	2.74	.28	1422
25	25	-.896	-.896	17.631	14.12	1343.8	3.41	.43	1422
30	30	-.896	-.896	17.640	14.13	1343.1	4.08	.62	1422
35	35	-.896	-.896	17.659	14.14	1341.6	4.75	.84	1422
40	40	-.896	-.896	17.664	14.15	1341.2	5.42	1.10	1422
45	45	-.895	-.895	17.668	14.15	1340.9	6.09	1.39	1422
50	49	-.895	-.895	17.671	14.15	1340.6	6.76	1.71	1422
51	50	-.895	-.895	17.673	14.16	1340.5	6.90	1.78	1423

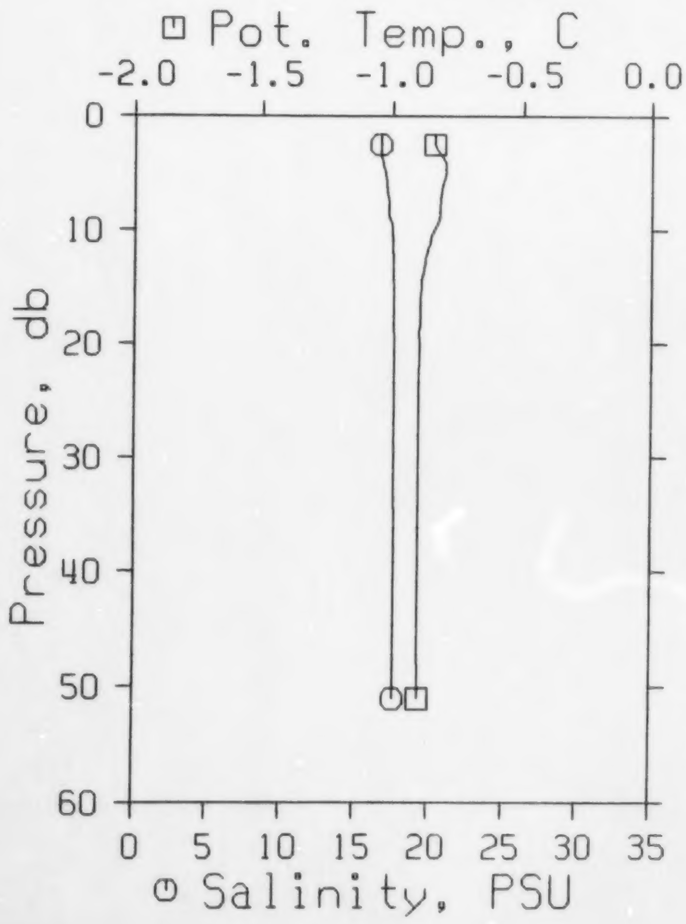


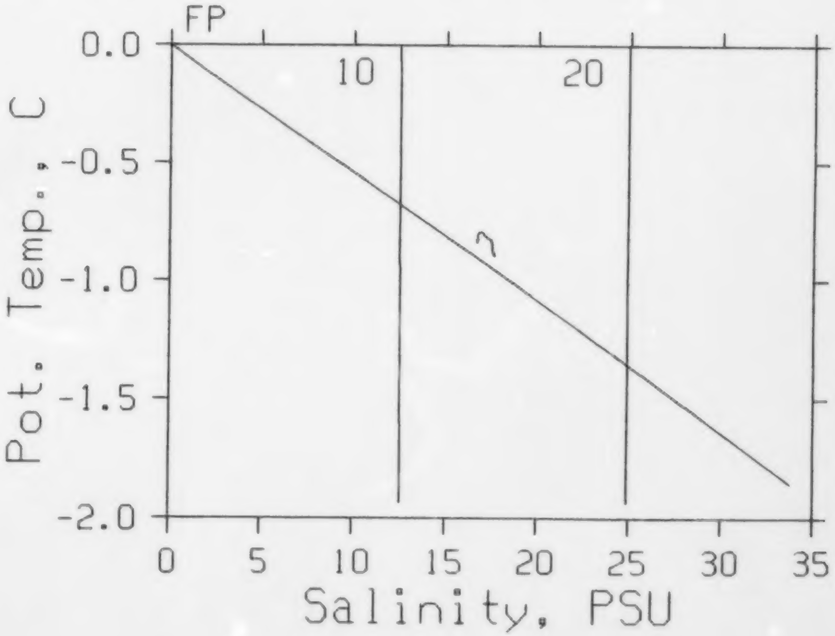


NOGAP ICEWORK 1991

STATION : LB04
REFERENCE NO.: 91-09-062
DATE/TIME : 10/05/91 09:50 MDT
POSITION : 69-30.2N 131-29.8W

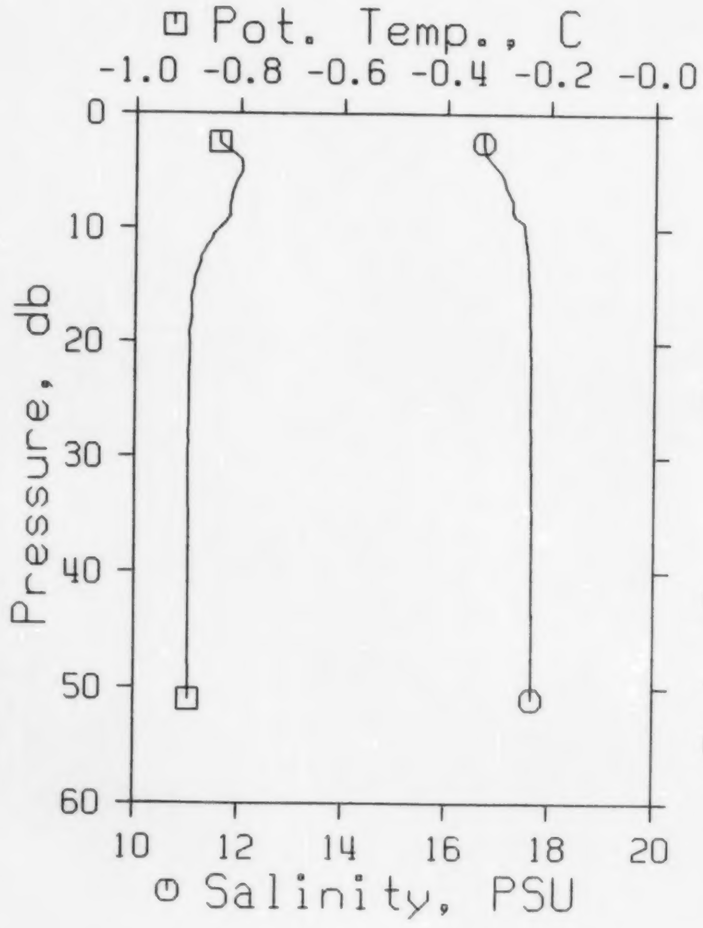
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.839	-.839	16.693	13.36	1417.5	.28	.00	1421
4	4	-.797	-.797	16.820	13.47	1407.4	.57	.01	1421
6	6	-.808	-.808	17.106	13.70	1384.9	.85	.03	1421
8	8	-.819	-.819	17.260	13.82	1372.8	1.12	.05	1422
10	10	-.841	-.841	17.497	14.01	1354.2	1.39	.07	1422
15	15	-.887	-.887	17.591	14.09	1346.9	2.07	.16	1422
20	20	-.895	-.895	17.621	14.11	1344.6	2.74	.28	1422
25	25	-.896	-.896	17.631	14.12	1343.8	3.41	.43	1422
30	30	-.896	-.896	17.640	14.13	1343.1	4.08	.62	1422
35	35	-.896	-.896	17.659	14.14	1341.6	4.75	.84	1422
40	40	-.896	-.896	17.664	14.15	1341.2	5.42	1.10	1422
45	45	-.895	-.895	17.668	14.15	1340.9	6.09	1.39	1422
50	49	-.895	-.895	17.671	14.15	1340.6	6.76	1.71	1422
51	50	-.895	-.895	17.673	14.16	1340.5	6.90	1.78	1423

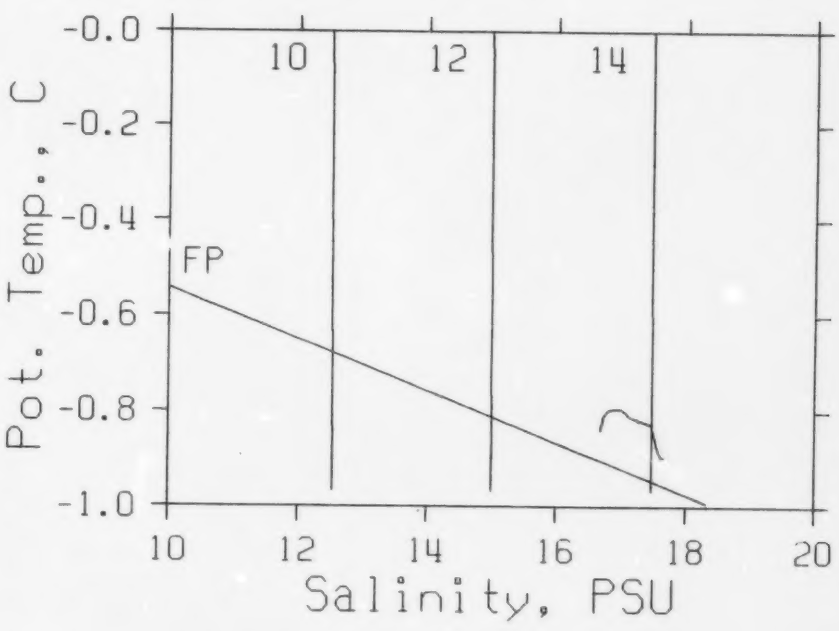




NOGAP ICEWORK 1991
STATION : LB04
REFERENCE NO.: 91-09-062
DATE/TIME : 10/05/91 09:50 MDT
POSITION : 69-30.2N 131-29.8W

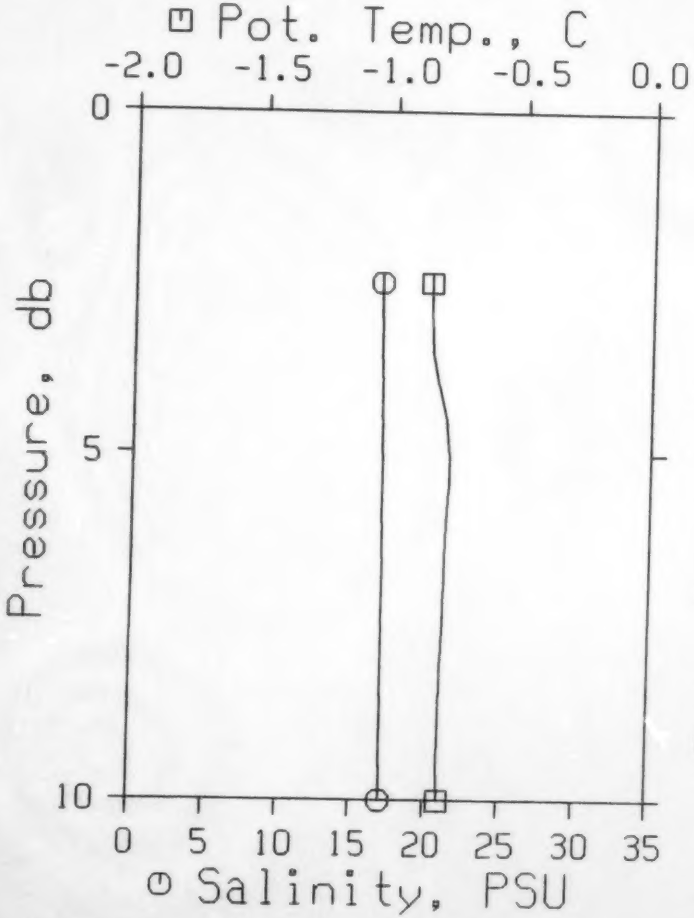
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.839	-.839	16.693	13.36	1417.5	.28	.00	1421
4	4	-.797	-.797	16.820	13.47	1407.4	.57	.01	1421
6	6	-.808	-.808	17.106	13.70	1384.9	.85	.03	1421
8	8	-.819	-.819	17.260	13.82	1372.8	1.12	.05	1422
10	10	-.841	-.841	17.497	14.01	1354.2	1.39	.07	1422
15	15	-.887	-.887	17.591	14.09	1346.9	2.07	.16	1422
20	20	-.895	-.895	17.621	14.11	1344.6	2.74	.28	1422
25	25	-.896	-.896	17.631	14.12	1343.8	3.41	.43	1422
30	30	-.896	-.896	17.640	14.13	1343.1	4.08	.62	1422
35	35	-.896	-.896	17.659	14.14	1341.6	4.75	.84	1422
40	40	-.896	-.896	17.664	14.15	1341.2	5.42	1.10	1422
45	45	-.895	-.895	17.668	14.15	1340.9	6.09	1.39	1422
50	49	-.895	-.895	17.671	14.15	1340.6	6.76	1.71	1422
51	50	-.895	-.895	17.673	14.16	1340.5	6.90	1.78	1423

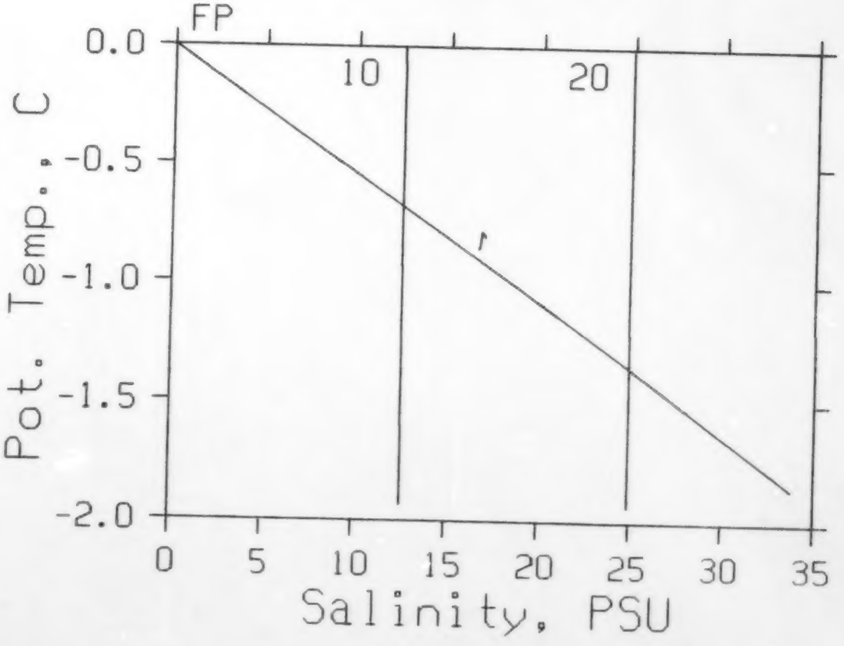




NOGAP ICEWORK 1991
STATION : LB05
REFERENCE NO.: 91-09-065
DATE/TIME : 10/05/91 15:55 MDT
POSITION : 69-29.0N 131-45.0W

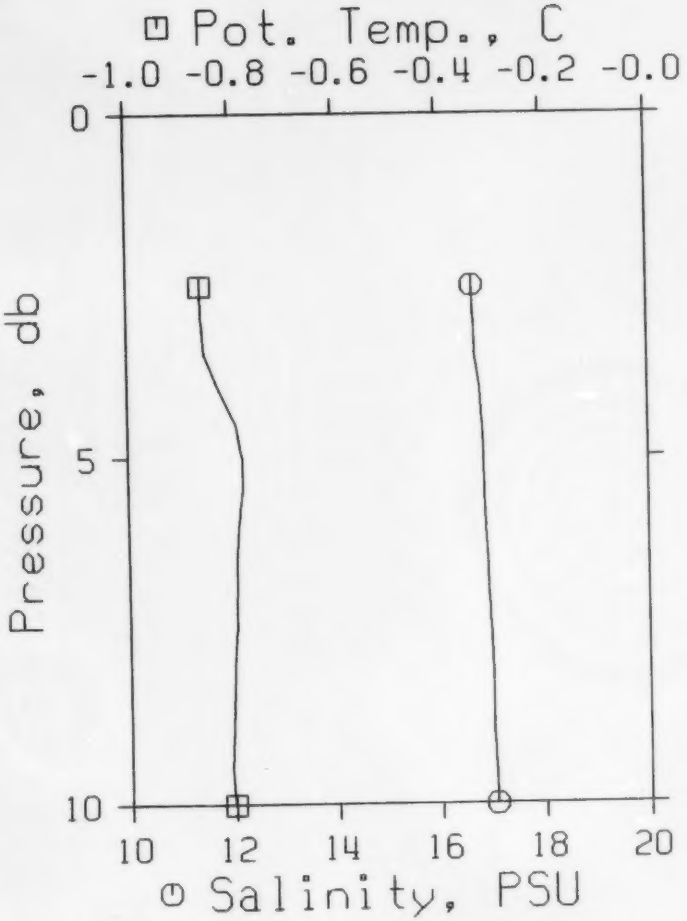
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.857	-.857	16.666	13.34	1419.6	.28	.00	1421
4	4	-.824	-.824	16.799	13.45	1409.1	.57	.01	1421
6	6	-.788	-.788	16.886	13.52	1402.2	.85	.03	1421
8	8	-.799	-.799	16.993	13.61	1393.8	1.13	.05	1421
10	10	-.801	-.801	17.048	13.65	1389.5	1.41	.07	1421
11	10	-.801	-.801	17.052	13.65	1389.1	1.48	.08	1421

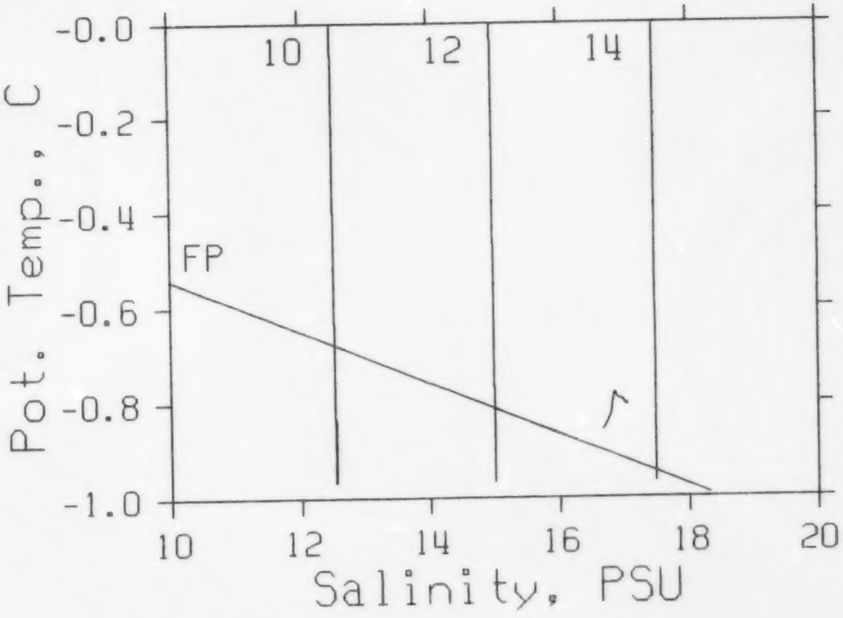




NOGAP ICEWORK 1991
STATION : LB05
REFERENCE NO.: 91-09-065
DATE/TIME : 10/05/91 15:55 MDT
POSITION : 69-29.0N 131-45.0W

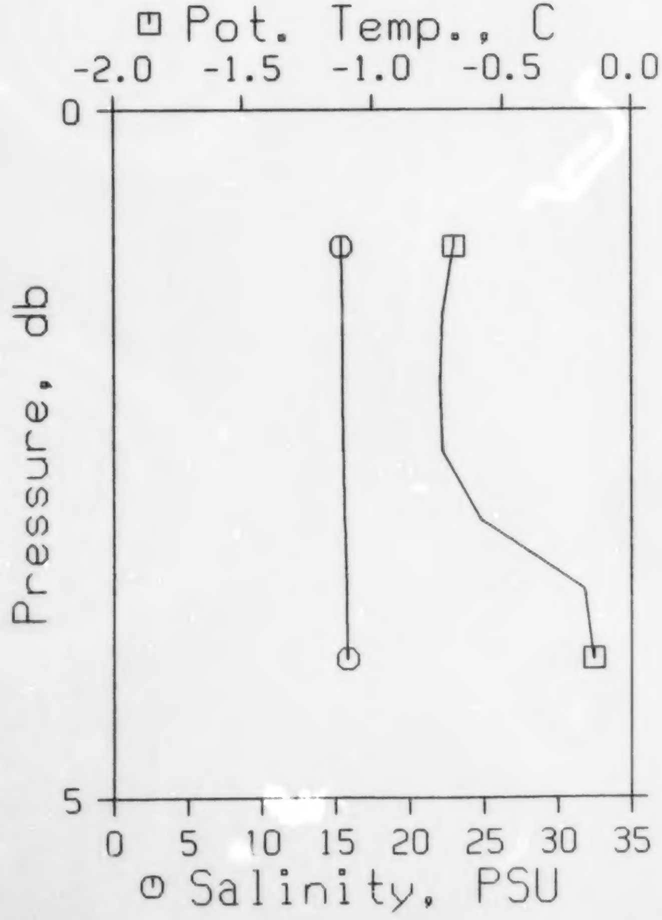
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.857	-.857	16.666	13.34	1419.6	.28	.00	1421
4	4	-.824	-.824	16.799	13.45	1409.1	.57	.01	1421
6	6	-.788	-.788	16.886	13.52	1402.2	.85	.03	1421
8	8	-.799	-.799	16.993	13.61	1393.8	1.13	.05	1421
10	10	-.801	-.801	17.048	13.65	1389.5	1.41	.07	1421
11	10	-.801	-.801	17.052	13.65	1389.1	1.48	.08	1421

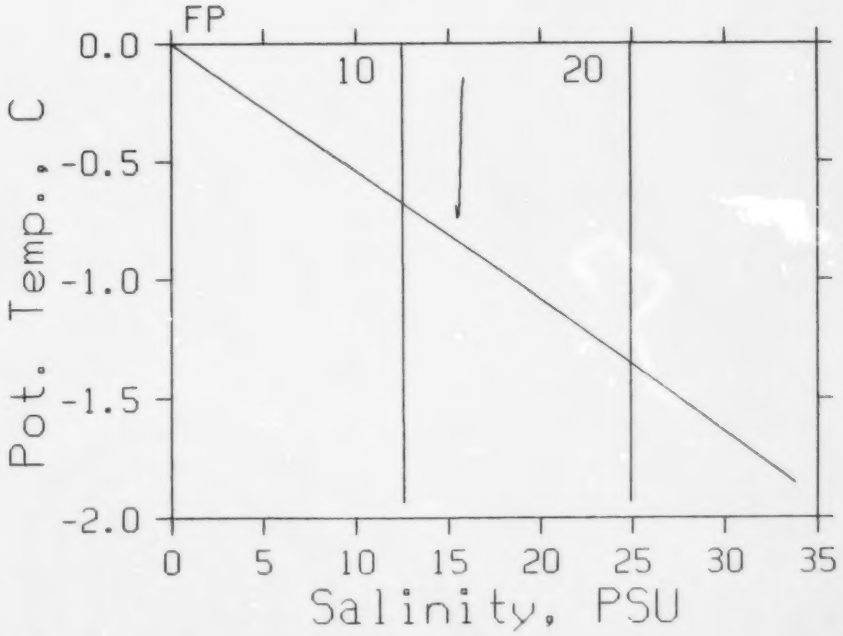




NOGAP ICEWORK 1991
STATION : LB06
REFERENCE NO.: 91-09-067
DATE/TIME : 10/05/91 16:37 MDT
POSITION : 69-20.4N 131-57.6W

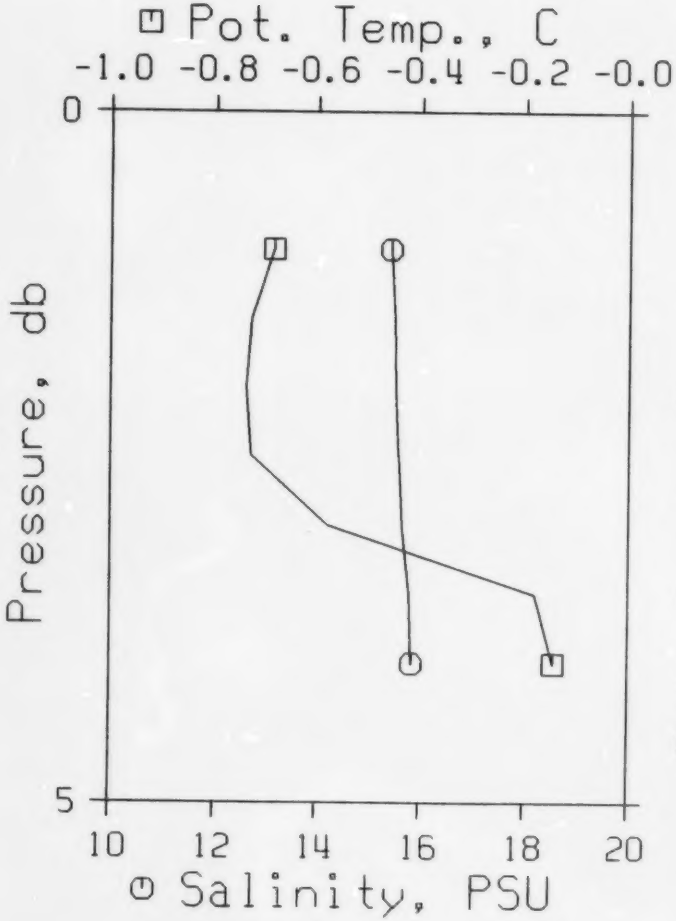
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.740	-.740	15.506	12.41	1510.8	.30	.00	1420
4	4	-.144	-.144	15.836	12.68	1483.8	.60	.01	1423

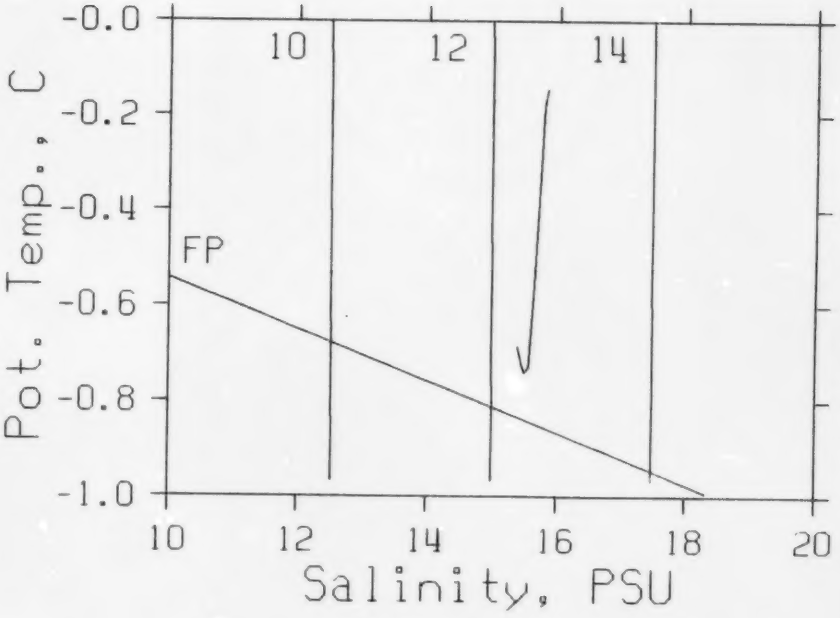




NOGAP ICEWORK 1991
STATION : LB06
REFERENCE NO.: 91-09-067
DATE/TIME : 10/05/91 16:37 MDT
POSITION : 69-20.4N 131-57.6W

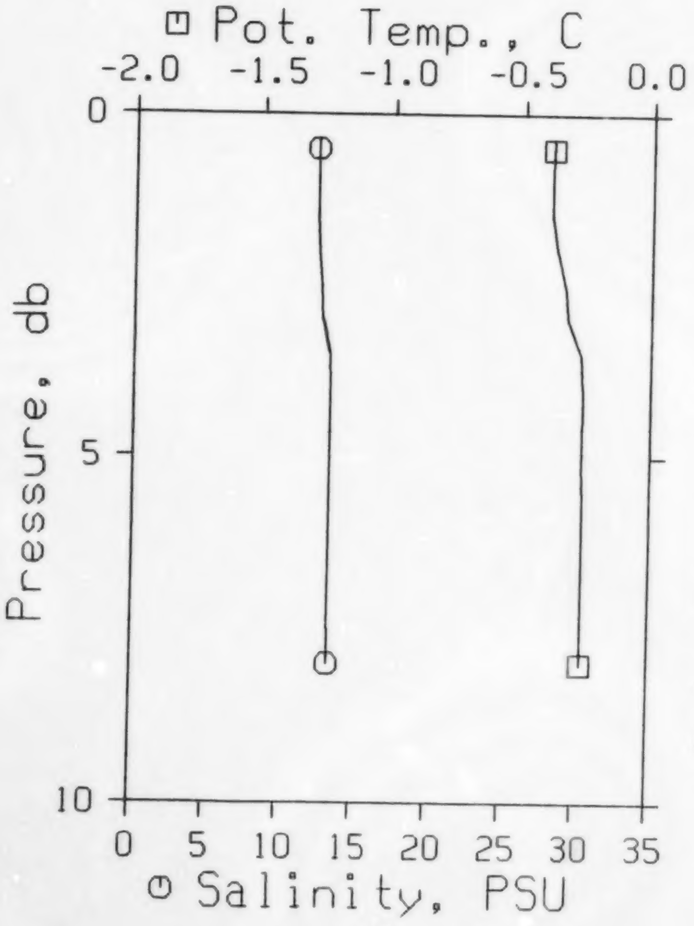
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.740	-.740	15.506	12.41	1510.8	.30	.00	1420
4	4	-.144	-.144	15.836	12.68	1483.8	.60	.01	1423

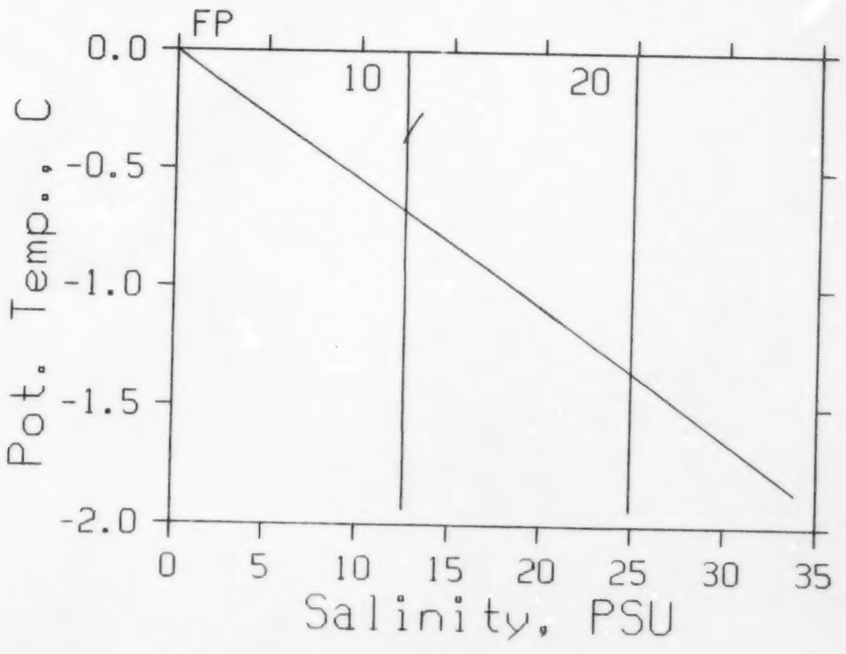




NOGAP ICEWORK 1991
STATION : LB07
REFERENCE NO.: 91-09-068
DATE/TIME : 10/05/91 17:29 MDT
POSITION : 69-13.4N 132-26.8W

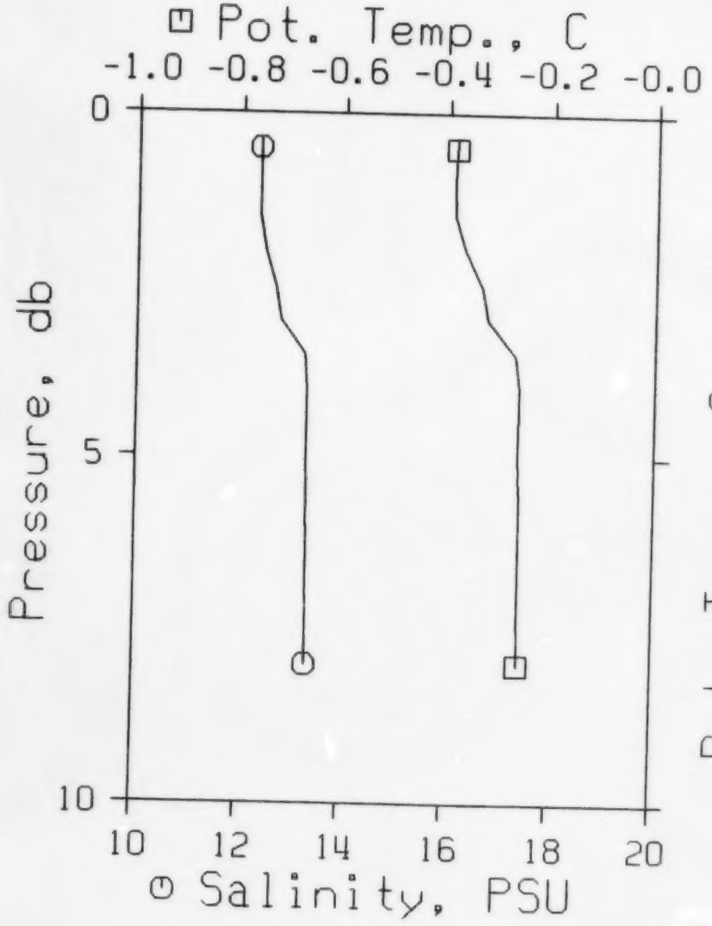
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.366	-.366	12.476	9.97	1749.3	.35	.00	1417
4	4	-.261	-.261	13.311	10.65	1683.0	.69	.01	1419
6	6	-.259	-.259	13.326	10.66	1681.8	1.03	.03	1419
8	8	-.258	-.258	13.339	10.67	1680.8	1.37	.06	1419

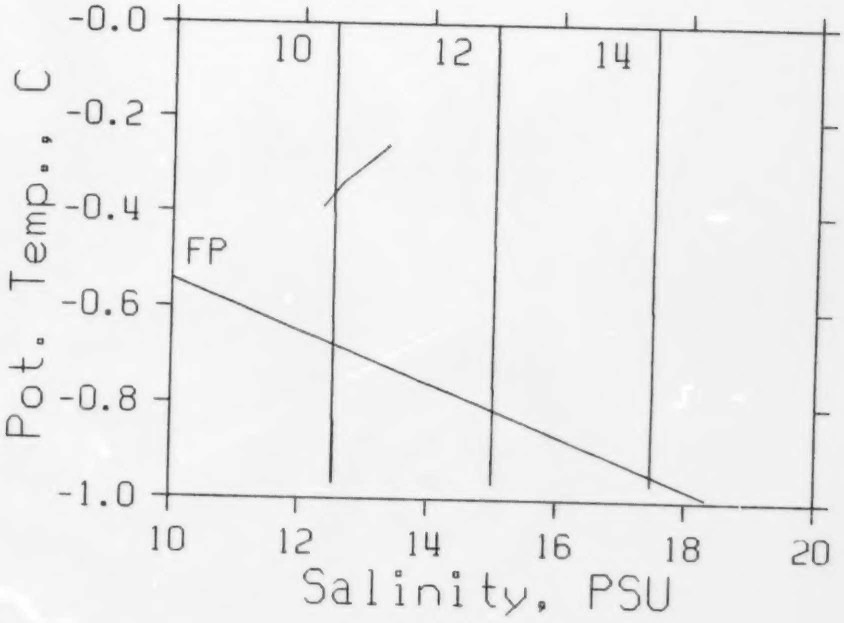




NOGAP ICEWORK 1991
STATION : LB07
REFERENCE NO.: 91-09-068
DATE/TIME : 10/05/91 17:29 MDT
POSITION : 69-13.4N 132-26.8W

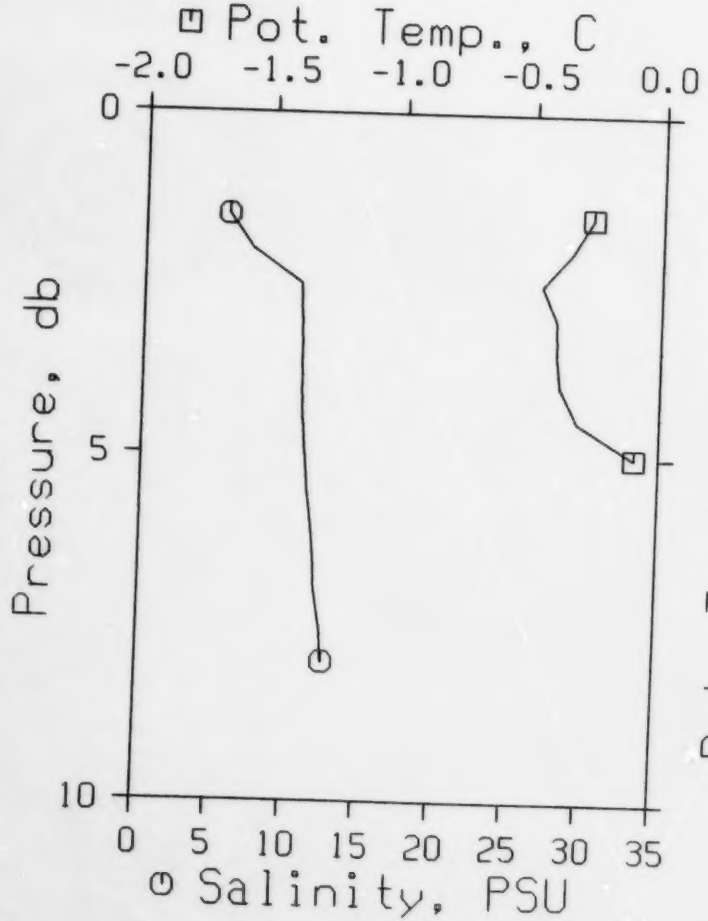
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.366	-.366	12.476	9.97	1749.3	.35	.00	1417
4	4	-.261	-.261	13.311	10.65	1683.0	.69	.01	1419
6	6	-.259	-.259	13.326	10.66	1681.8	1.03	.03	1419
8	8	-.258	-.258	13.339	10.67	1680.8	1.37	.06	1419

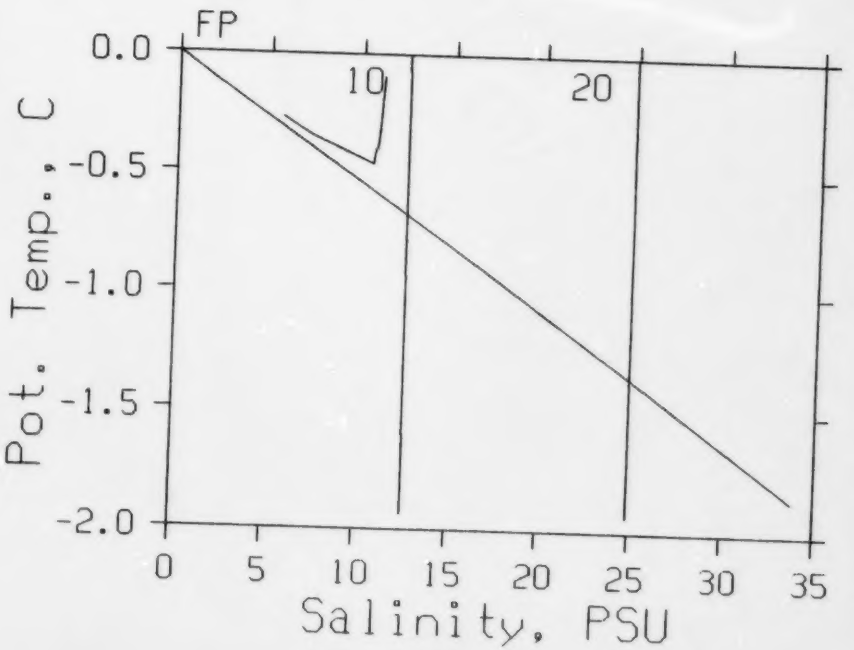




NOGAP ICEWORK 1991
STATION : LB08
REFERENCE NO.: 91-09-069
DATE/TIME : 10/05/91 17:52 MDT
POSITION : 69-11.2N 132-41.5W

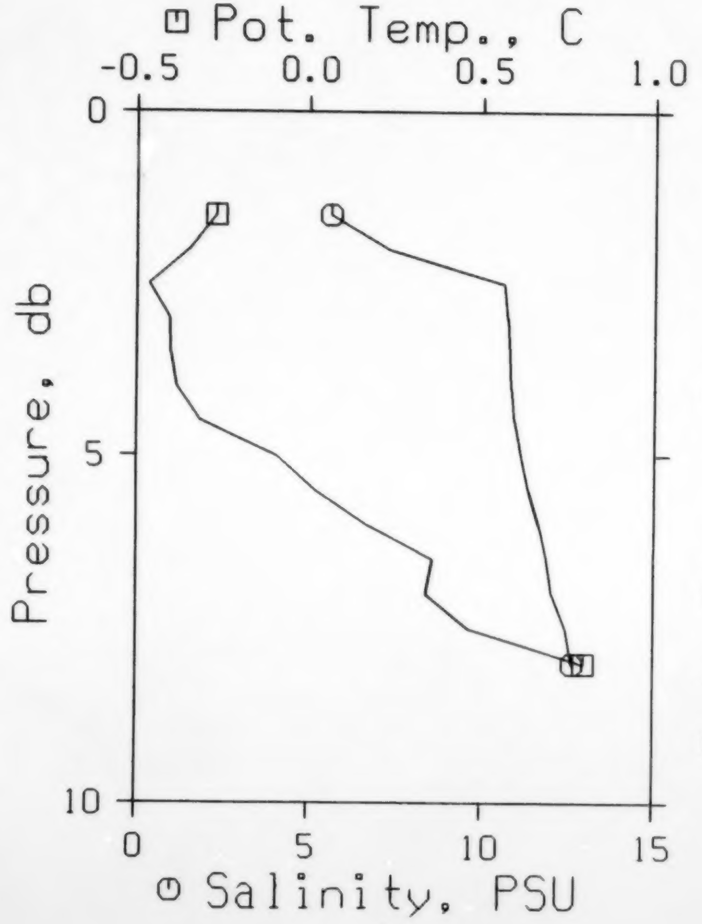
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.350	-.350	7.357	5.83	2156.6	.46	.00	1411
4	4	-.384	-.384	10.840	8.65	1879.1	.84	.02	1415
6	6	.172	.172	11.664	9.33	1812.3	1.21	.04	1419
8	8	.799	.799	12.655	10.13	1733.1	1.56	.06	1423

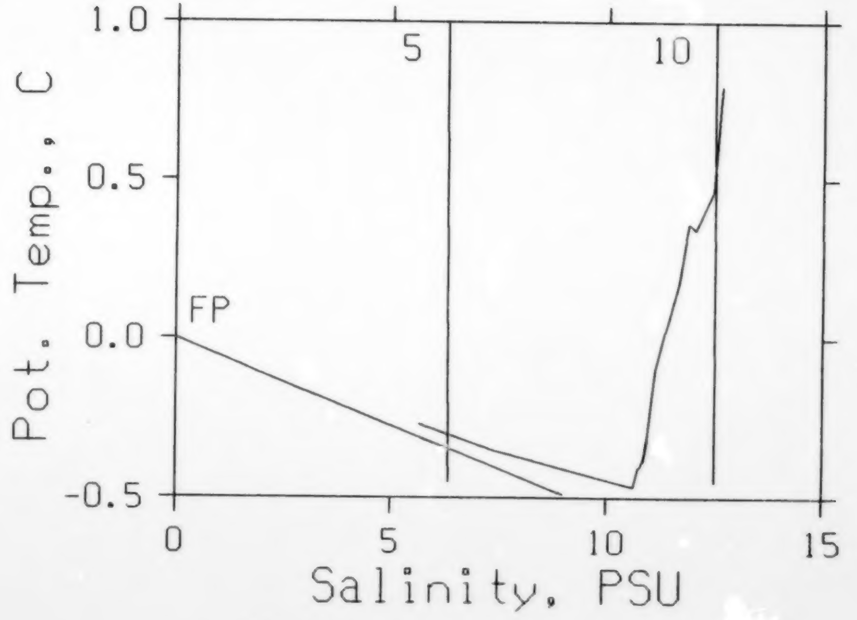




NOGAP ICEWORK 1991
STATION : LB08
REFERENCE NO.: 91-09-069
DATE/TIME : 10/05/91 17:52 MDT
POSITION : 69-11.2N 132-41.5W

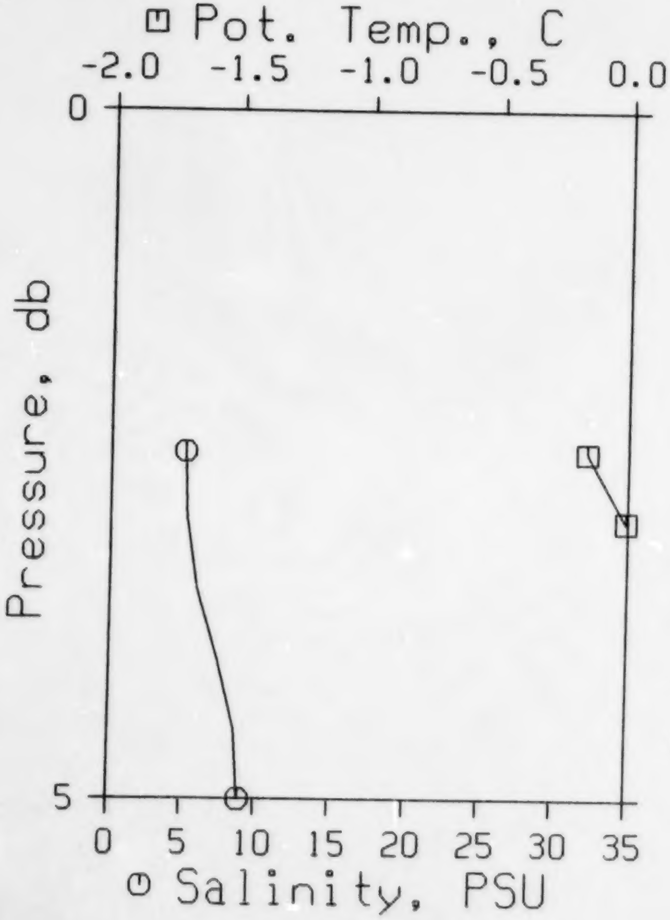
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.350	-.350	7.357	5.83	2156.6	.46	.00	1411
4	4	-.384	-.384	10.840	8.65	1879.1	.84	.02	1415
6	6	.172	.172	11.664	9.33	1812.3	1.21	.04	1419
8	8	.799	.799	12.655	10.13	1733.1	1.56	.06	1423

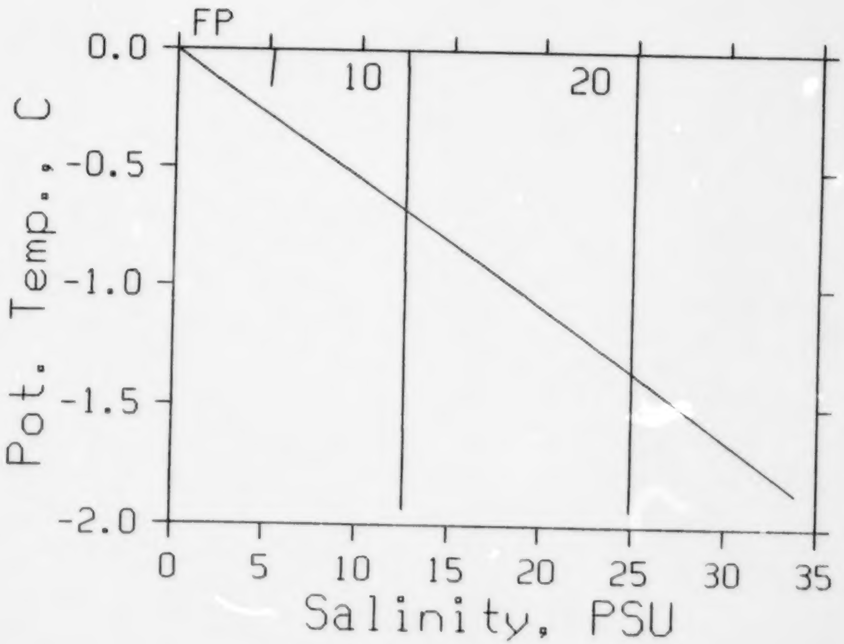




NOGAP ICEWORK 1991
STATION : LB09
REFERENCE NO.: 91-09-070
DATE/TIME : 10/05/91 18:37 MDT
POSITION : 68-59.4N 132-57.5W

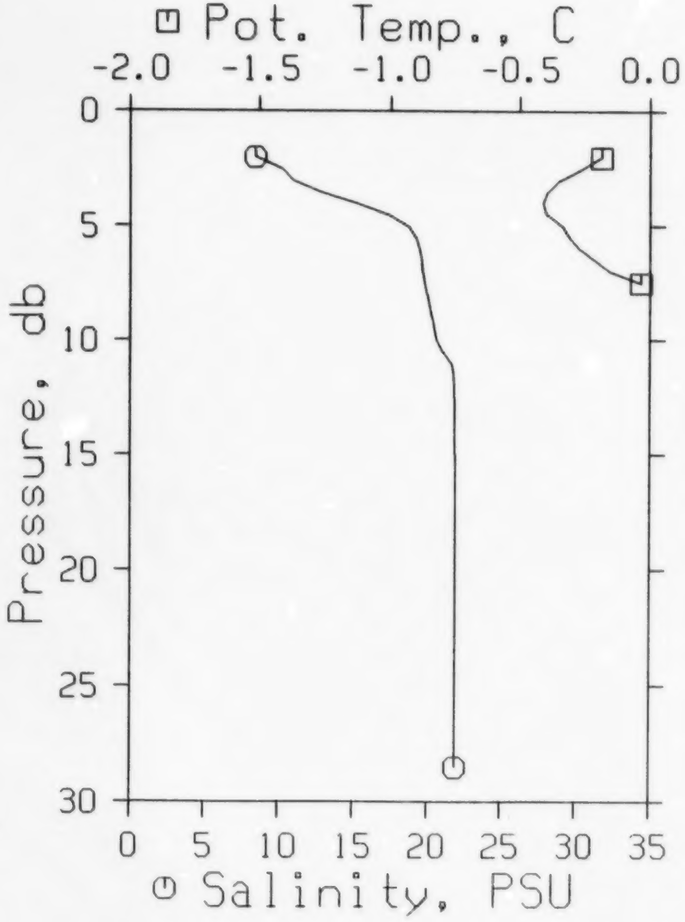
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.158	-.158	5.092	4.01	2337.4	.47	.01	1409
4	4	.112	.112	7.399	5.88	2151.3	.93	.02	1413
6	5	.010	.010	9.100	7.25	2016.1	1.23	.03	1415

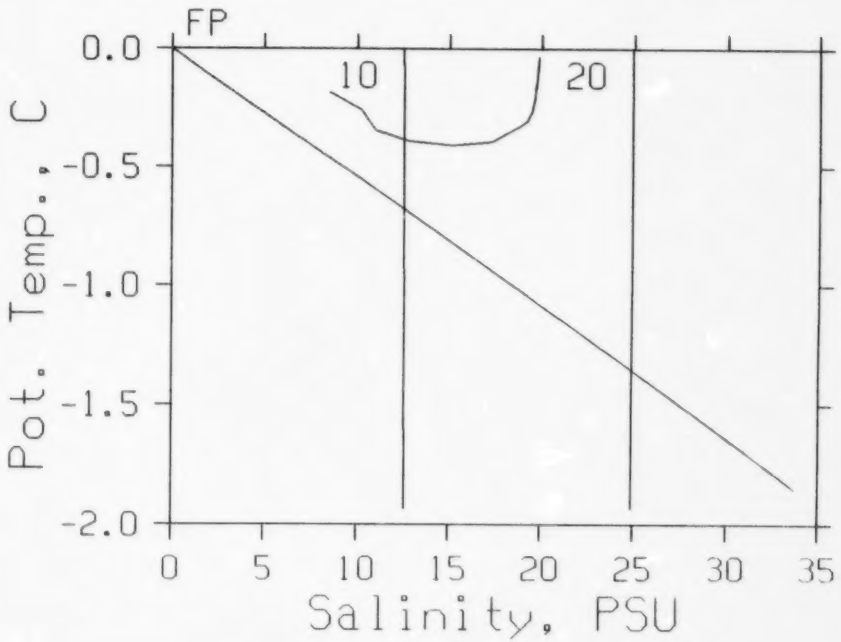




NOGAP ICEWORK 1991
STATION : MB01
REFERENCE NO.: 91-09-061
DATE/TIME : 09/05/80 13:54 MDT
POSITION : 69-33.2N 134- 4.5W

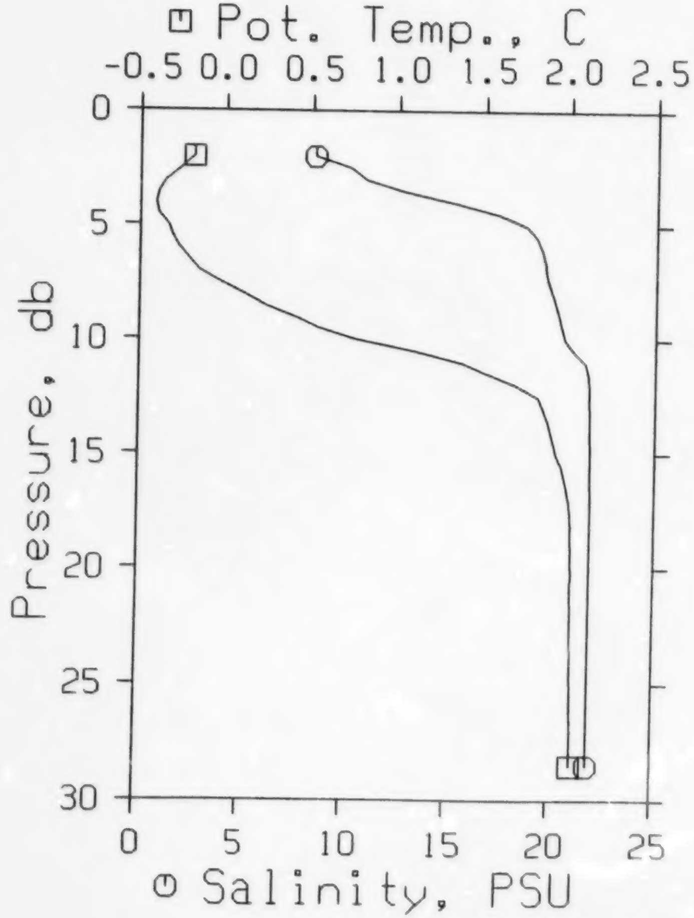
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.184	-.184	8.475	6.74	2066.6	.41	.00	1413
4	4	-.409	-.409	15.183	12.15	1535.6	.78	.02	1421
6	6	-.266	-.266	19.462	15.61	1199.6	1.04	.03	1427
8	8	.106	.106	20.000	16.04	1157.7	1.28	.05	1430
10	10	.763	.763	20.632	16.54	1109.3	1.50	.07	1434
15	15	1.927	1.927	21.899	17.52	1014.5	2.02	.13	1441
20	20	2.024	2.023	21.921	17.53	1013.1	2.52	.22	1441
25	25	2.031	2.030	21.929	17.54	1012.5	3.03	.34	1442
29	28	2.036	2.035	21.929	17.54	1012.6	3.38	.43	1442

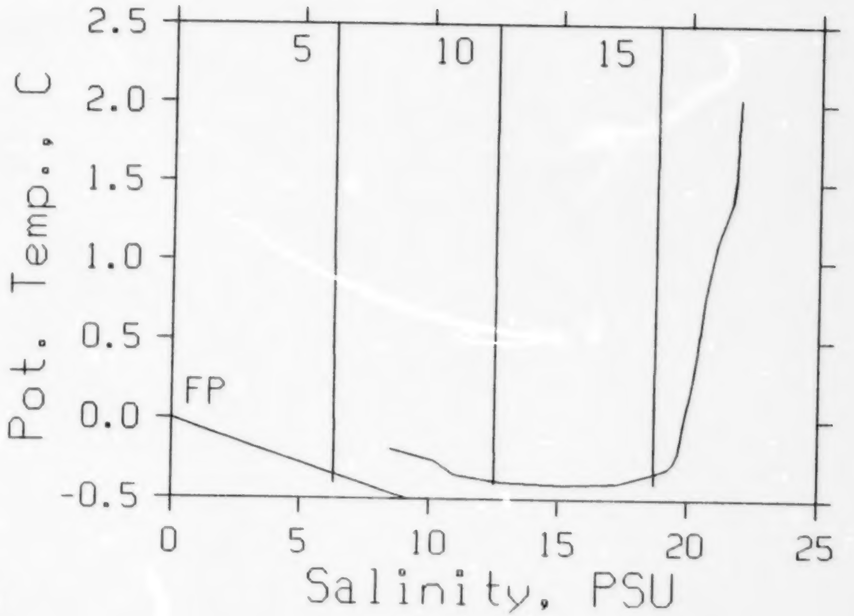




NOGAP ICEWORK 1991
STATION : MB01
REFERENCE NO.: 91-09-061
DATE/TIME : 09/05/80 13:54 MDT
POSITION : 69-33.2N 134- 4.5W

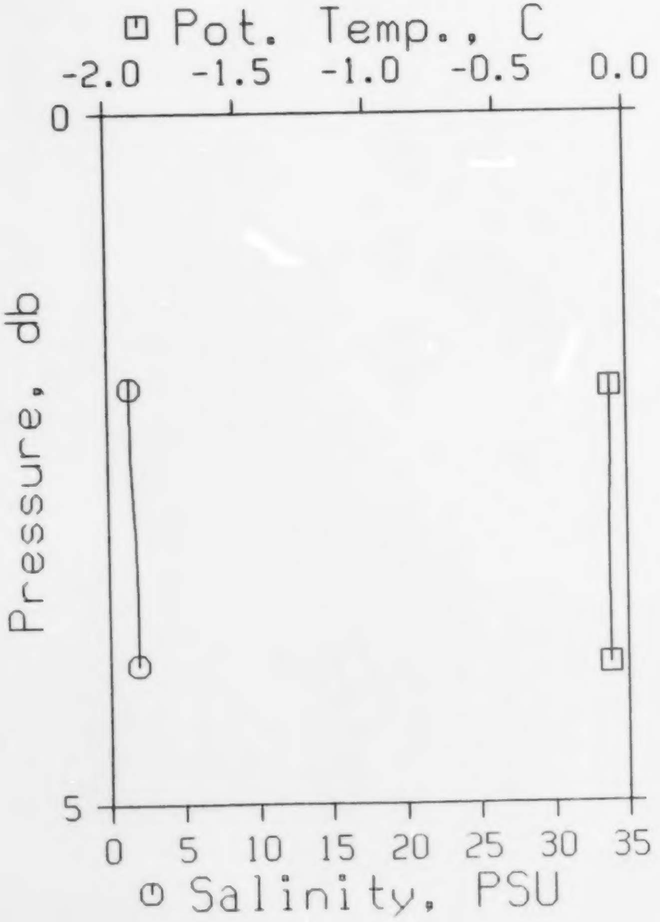
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.184	-.184	8.475	6.74	2066.6	.41	.00	1413
4	4	-.409	-.409	15.183	12.15	1535.6	.78	.02	1421
6	6	-.266	-.266	19.462	15.61	1199.6	1.04	.03	1427
8	8	.106	.106	20.000	16.04	1157.7	1.28	.05	1430
10	10	.763	.763	20.632	16.54	1109.3	1.50	.07	1434
15	15	1.927	1.927	21.899	17.52	1014.5	2.02	.13	1441
20	20	2.024	2.023	21.921	17.53	1013.1	2.52	.22	1441
25	25	2.031	2.030	21.929	17.54	1012.5	3.03	.34	1442
29	28	2.036	2.035	21.929	17.54	1012.6	3.38	.43	1442

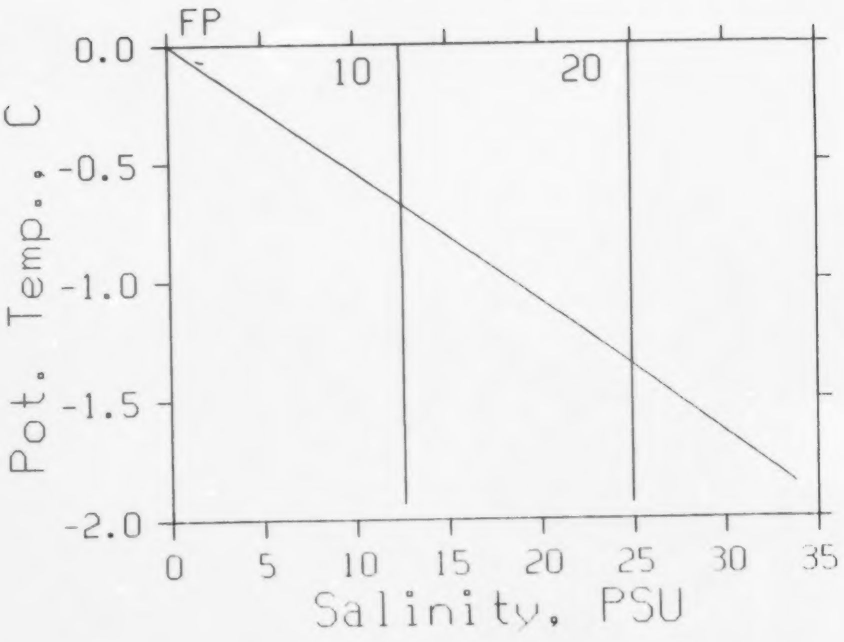




NOGAP ICEWORK 1991
STATION : PI01
REFERENCE NO.: 91-09-030
DATE/TIME : 30/04/91 14:19 MDT
POSITION : 69-43.8N 134-31.2W

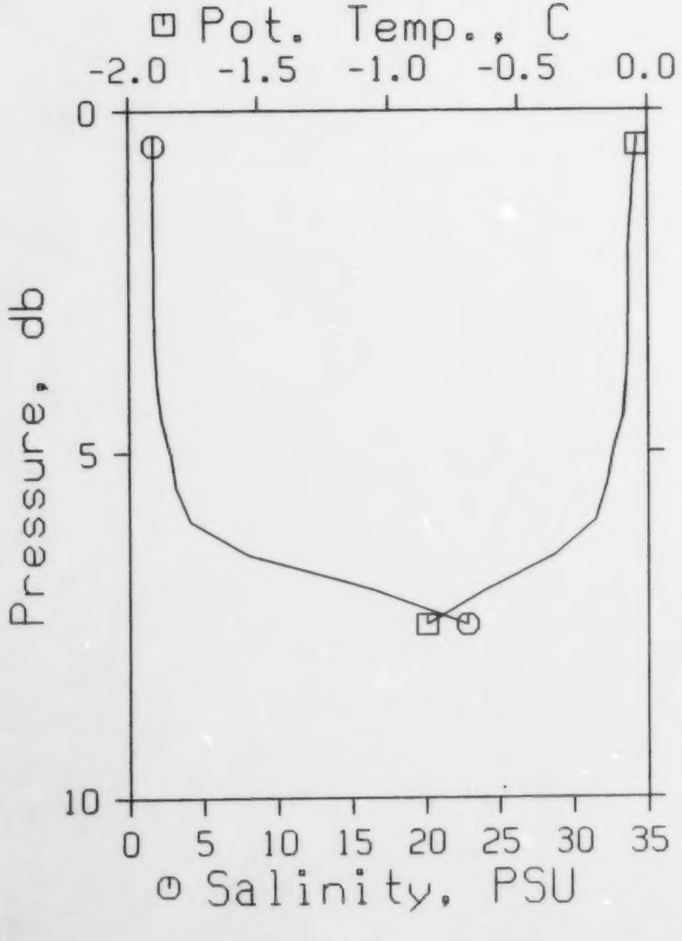
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.063	-.063	1.495	1.09	2627.7	.53	.01	1404
4	4	-.067	-.067	1.942	1.45	2591.4	1.05	.02	1405

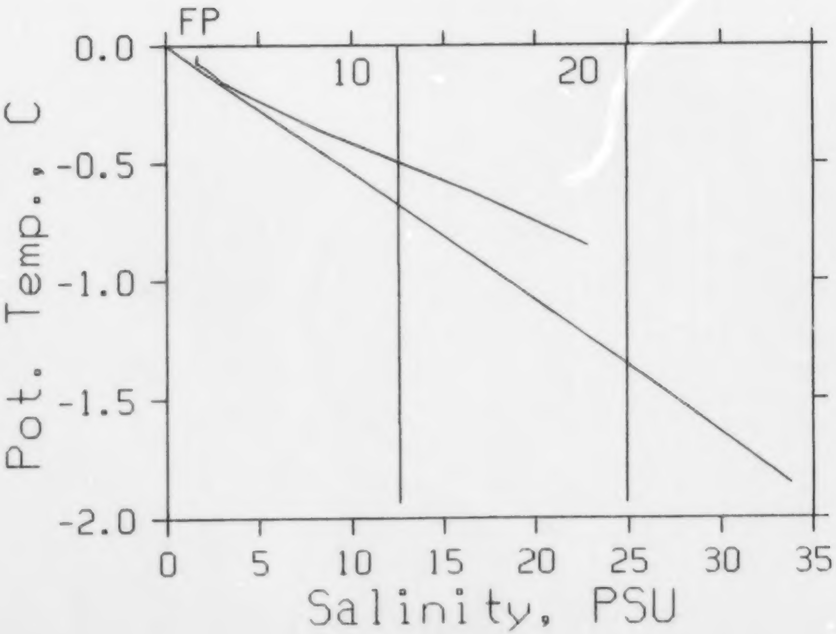




NOGAP ICEWORK 1991
STATION : PI02
REFERENCE NO.: 91-09-029
DATE/TIME : 30/04/91 12:16 MDT
POSITION : 69-48.7N 134-38.2W

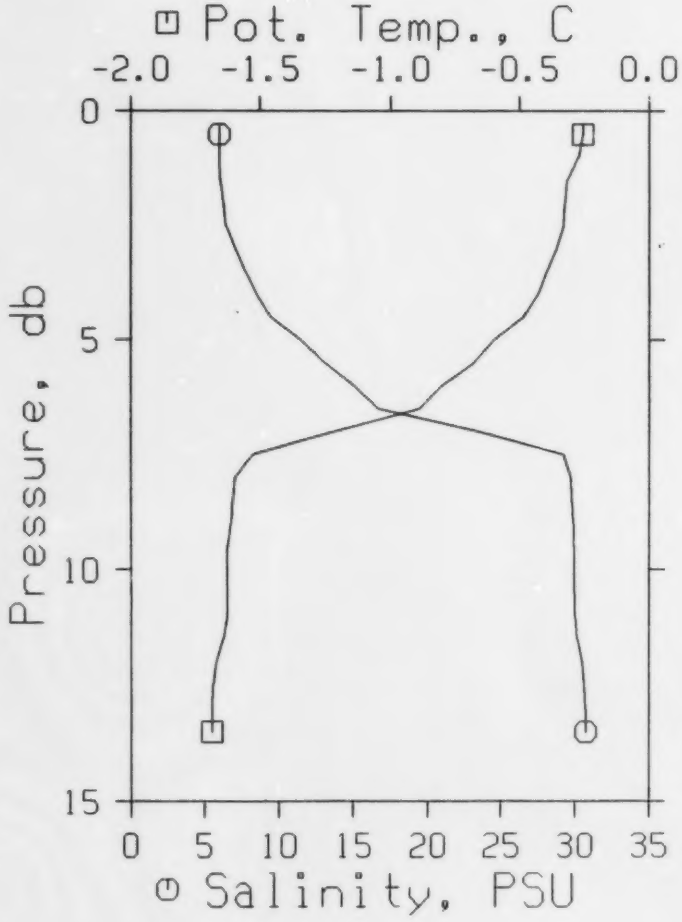
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.074	-.074	1.686	1.24	2612.2	.52	.01	1404
4	4	-.084	-.084	1.885	1.40	2596.1	1.04	.02	1405
6	6	-.201	-.201	4.115	3.21	2416.3	1.55	.05	1407
8	7	-.852	-.852	22.828	18.32	936.9	1.81	.06	1429

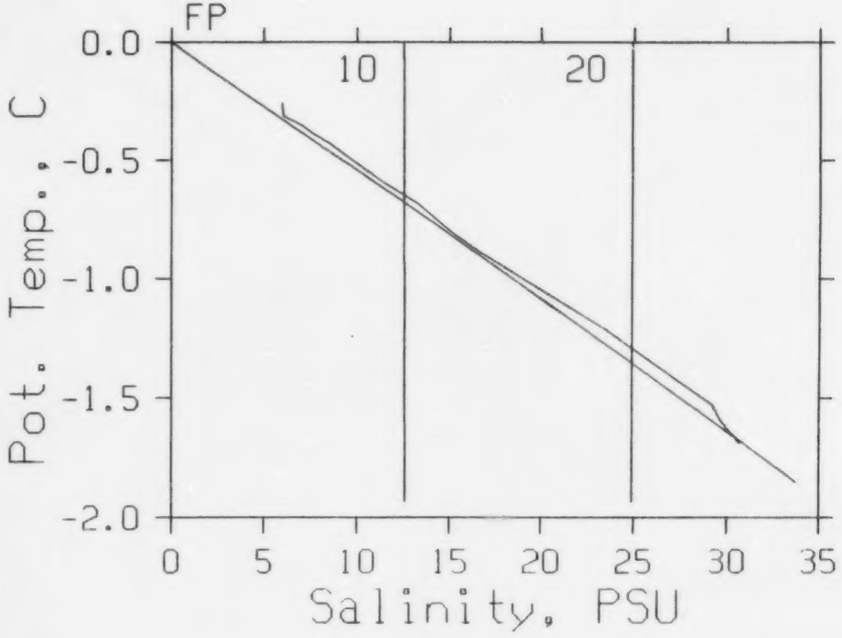




NOGAP ICEWORK 1991
STATION : PI03
REFERENCE NO.: 91-09-020
DATE/TIME : 29/04/91 10:18 MDT
POSITION : 69-55.0N 134-48.0W

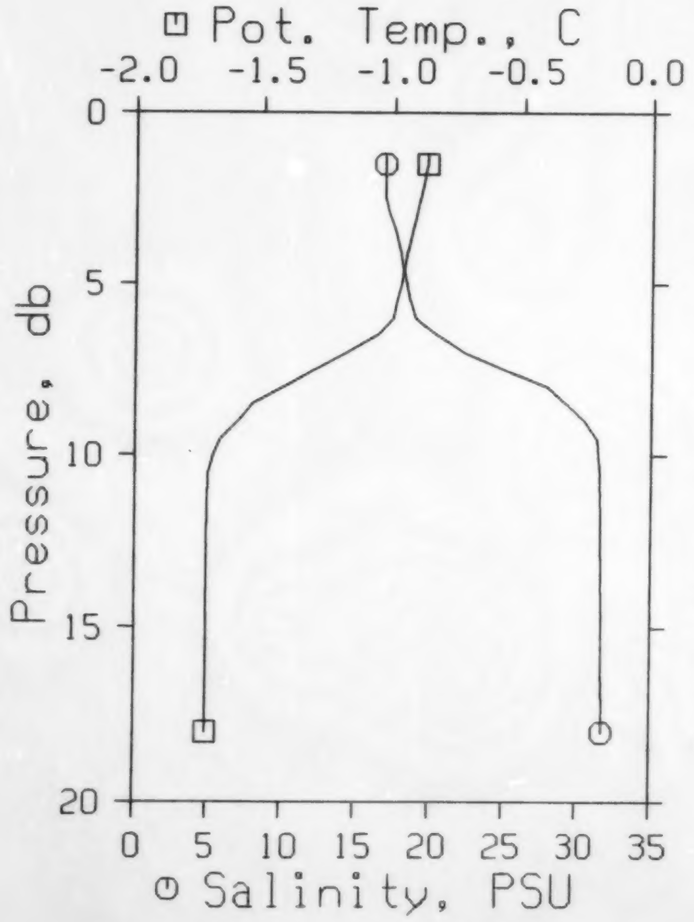
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.323	-.323	6.292	4.97	2241.8	.45	.00	1409
4	4	-.428	-.428	8.507	6.76	2065.0	.89	.02	1412
6	6	-.801	-.801	15.085	12.06	1544.2	1.25	.04	1419
8	8	-1.596	-1.596	29.736	23.92	399.6	1.44	.05	1435
10	10	-1.627	-1.627	29.981	24.12	380.6	1.51	.06	1435
14	13	-1.686	-1.686	30.760	24.76	320.3	1.64	.07	1436

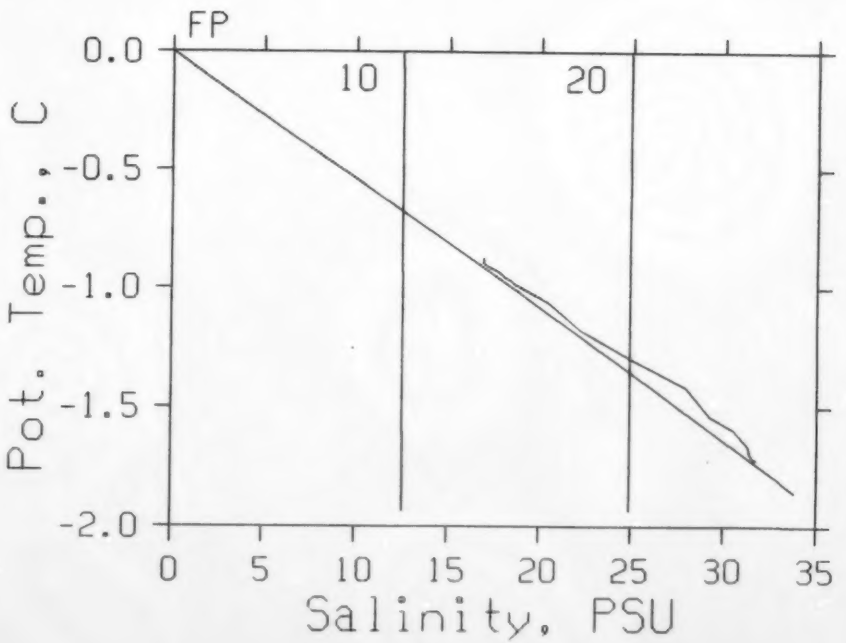




NOGAP ICEWORK 1991
STATION : PI04
REFERENCE NO.: 91-09-019
DATE/TIME : 29/04/91 12:41 MDT
POSITION : 69-57.9N 134-53.7W

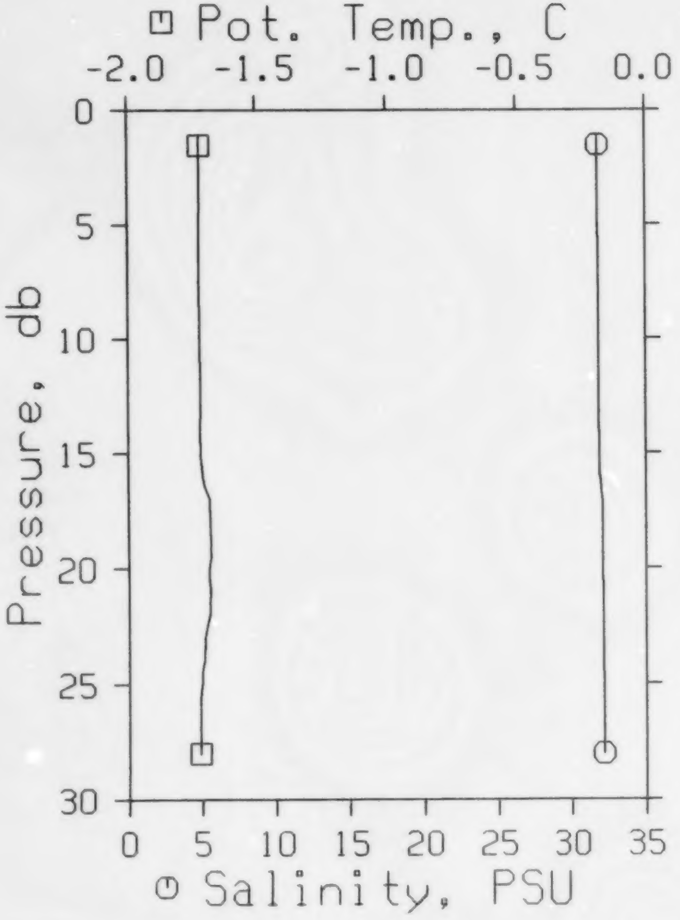
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.885	-.885	16.906	13.53	1400.8	.28	.00	1421
4	4	-.946	-.946	17.944	14.37	1319.3	.55	.01	1422
6	6	-1.002	-1.002	19.015	15.24	1235.2	.81	.02	1423
8	8	-1.416	-1.416	27.953	22.48	538.0	1.00	.04	1433
10	10	-1.695	-1.695	31.434	25.31	268.1	1.07	.04	1437
15	15	-1.719	-1.719	31.717	25.54	246.2	1.20	.06	1437
18	18	-1.719	-1.719	31.790	25.59	240.6	1.27	.07	1437

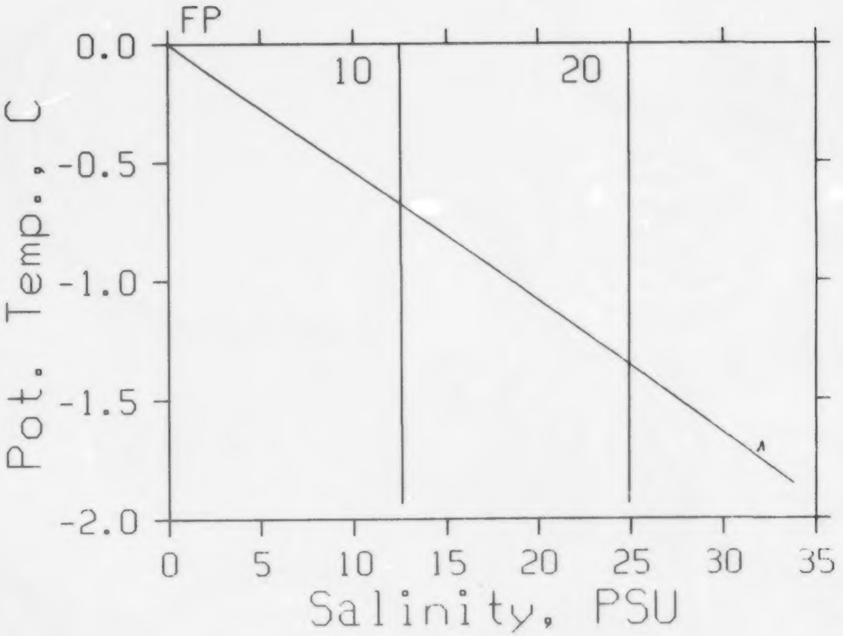




NOGAP ICEWORK 1991
STATION : PI05
REFERENCE NO.: 91-09-009
DATE/TIME : 26/04/91 12:47 MDT
POSITION : 70- 2.0N 135- .0W

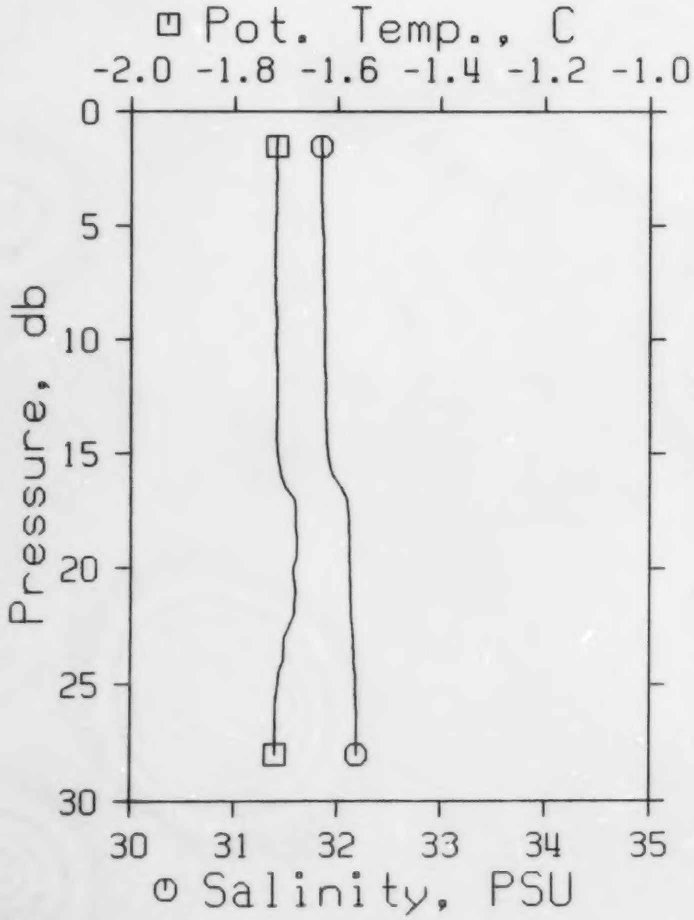
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.719	-1.719	31.841	25.64	236.6	.05	.00	1437
4	4	-1.719	-1.719	31.839	25.64	236.8	.09	.00	1437
6	6	-1.722	-1.722	31.860	25.65	235.2	.14	.00	1437
8	8	-1.721	-1.721	31.863	25.66	234.9	.19	.01	1437
10	10	-1.719	-1.719	31.869	25.66	234.5	.24	.01	1437
15	15	-1.716	-1.716	31.905	25.69	231.7	.35	.03	1437
20	20	-1.686	-1.686	32.121	25.86	215.1	.46	.05	1438
25	25	-1.715	-1.715	32.176	25.91	210.8	.57	.07	1438
28	28	-1.720	-1.720	32.185	25.92	210.1	.63	.09	1438

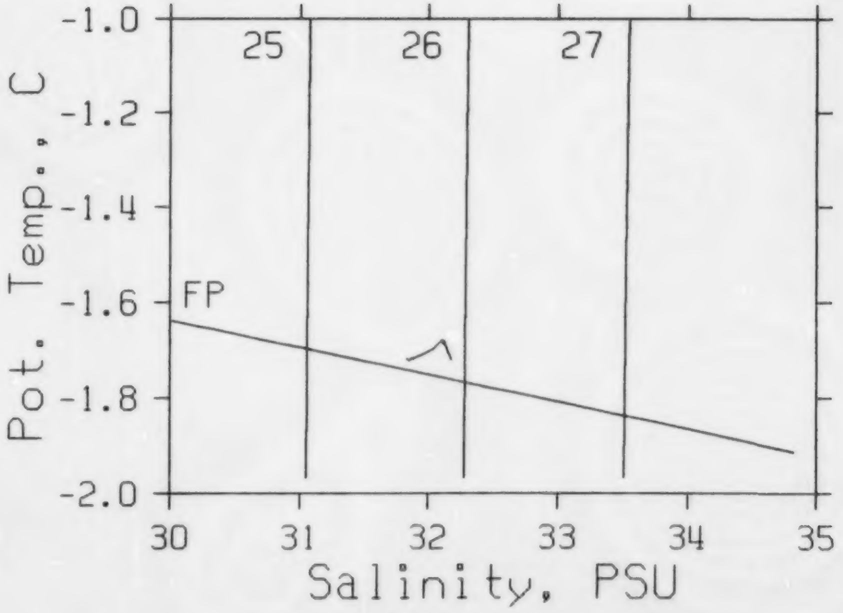




NOGAP ICEWORK 1991
STATION : PI05
REFERENCE NO.: 91-09-009
DATE/TIME : 26/04/91 12:47 MDT
POSITION : 70- 2.0N 135- .0W

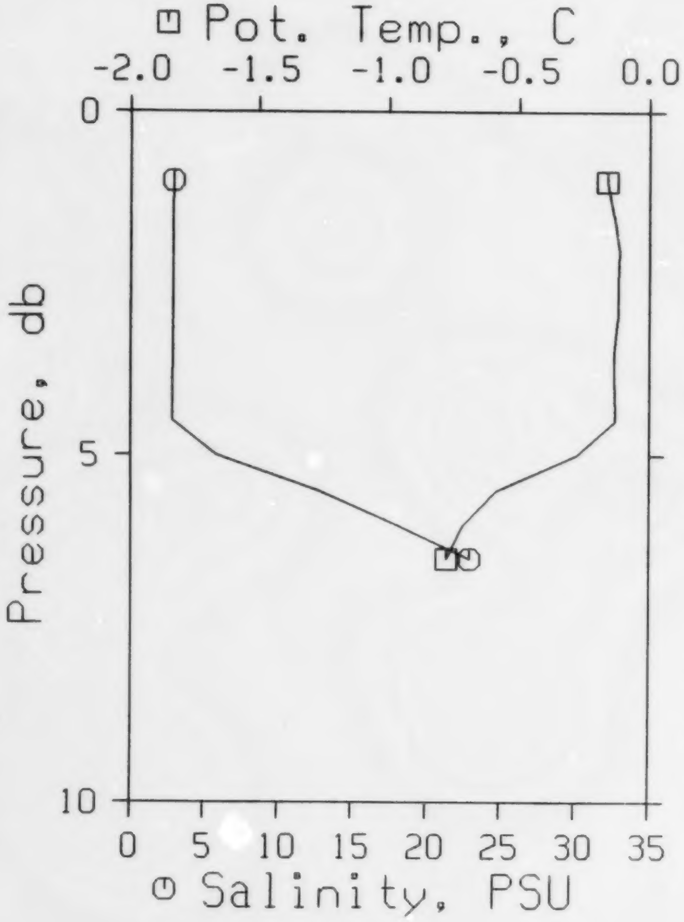
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.719	-1.719	31.841	25.64	236.6	.05	.00	1437
4	4	-1.719	-1.719	31.839	25.64	236.8	.09	.00	1437
6	6	-1.722	-1.722	31.860	25.65	235.2	.14	.00	1437
8	8	-1.721	-1.721	31.863	25.66	234.9	.19	.01	1437
10	10	-1.719	-1.719	31.869	25.66	234.5	.24	.01	1437
15	15	-1.716	-1.716	31.905	25.69	231.7	.35	.03	1437
20	20	-1.686	-1.686	32.121	25.86	215.1	.46	.05	1438
25	25	-1.715	-1.715	32.176	25.91	210.8	.57	.07	1438
28	28	-1.720	-1.720	32.185	25.92	210.1	.63	.09	1438

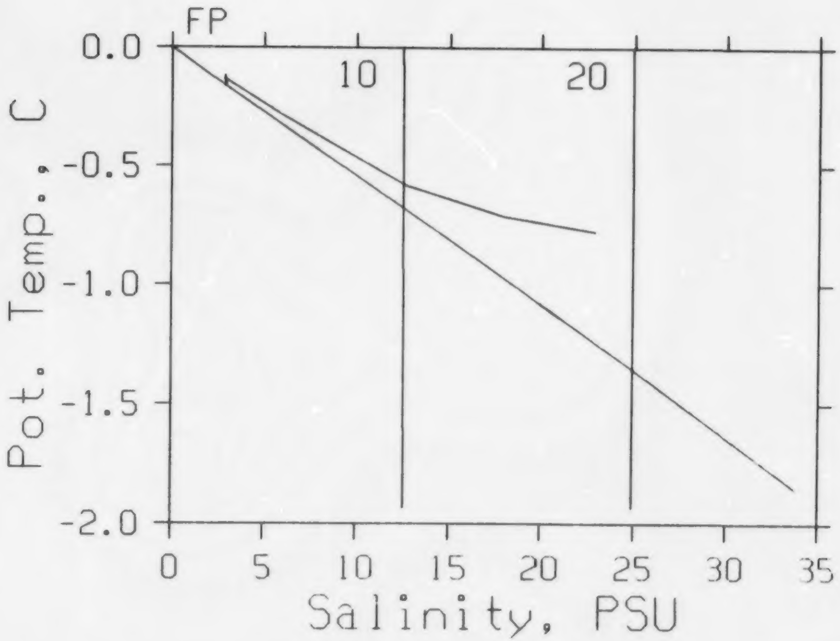




NOGAP ICEWORK 1991
STATION : REV1
REFERENCE NO.: 91-09-001
DATE/TIME : 19/04/91 17:26 MDT
POSITION : 69-42.8N 133-11.6W

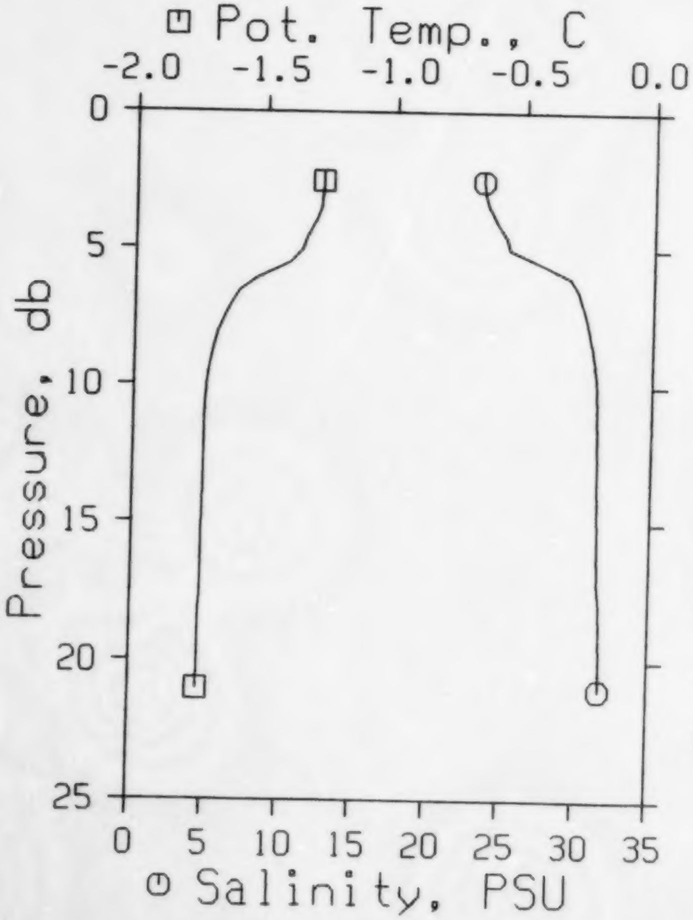
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.114	-.114	2.880	2.21	2515.6	.50	.01	1406
4	4	-.133	-.133	2.840	2.18	2519.0	1.01	.02	1406
6	6	-.714	-.714	18.025	14.44	1312.5	1.43	.04	1423
7	6	-.778	-.778	22.940	18.41	928.1	1.48	.04	1429

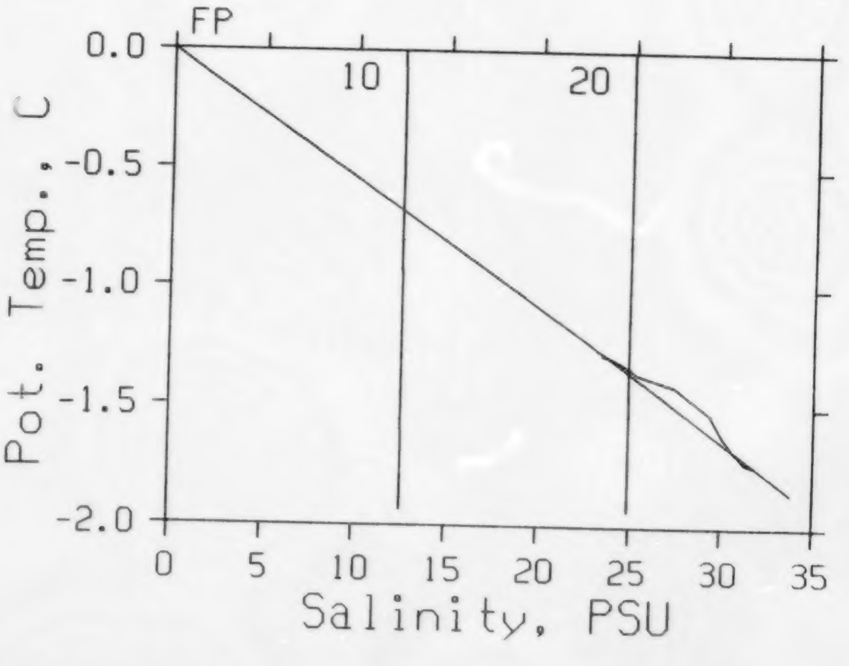




NOGAP ICEWORK 1991
STATION : REV2
REFERENCE NO.: 91-09-008
DATE/TIME : 25/04/91 21:20 MDT
POSITION : 69-56.1N 133-20.4W

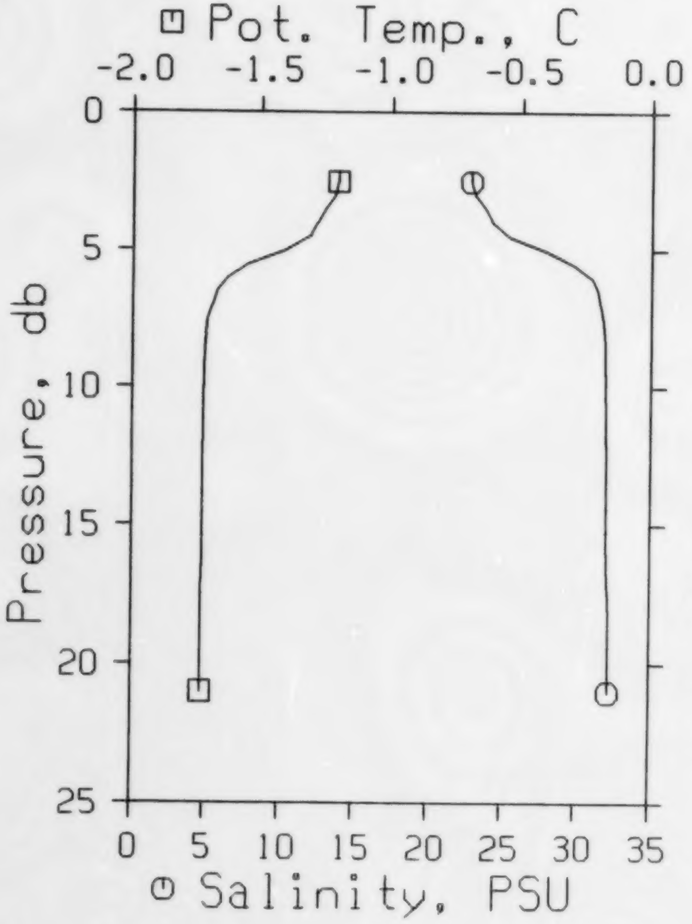
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.281	-1.281	23.420	18.80	890.7	.18	.00	1428
4	4	-1.311	-1.311	24.374	19.58	816.3	.35	.01	1429
4	4	-1.335	-1.335	24.899	20.00	775.5	.39	.01	1429
6	6	-1.522	-1.522	29.341	23.60	430.3	.49	.01	1434
8	8	-1.679	-1.679	30.671	24.69	327.2	.56	.02	1436
10	10	-1.721	-1.721	31.252	25.16	282.2	.62	.02	1436
15	15	-1.730	-1.730	31.431	25.30	268.3	.76	.04	1436
20	20	-1.737	-1.737	31.709	25.53	246.8	.89	.06	1437
21	21	-1.739	-1.739	31.725	25.54	245.6	.91	.07	1437

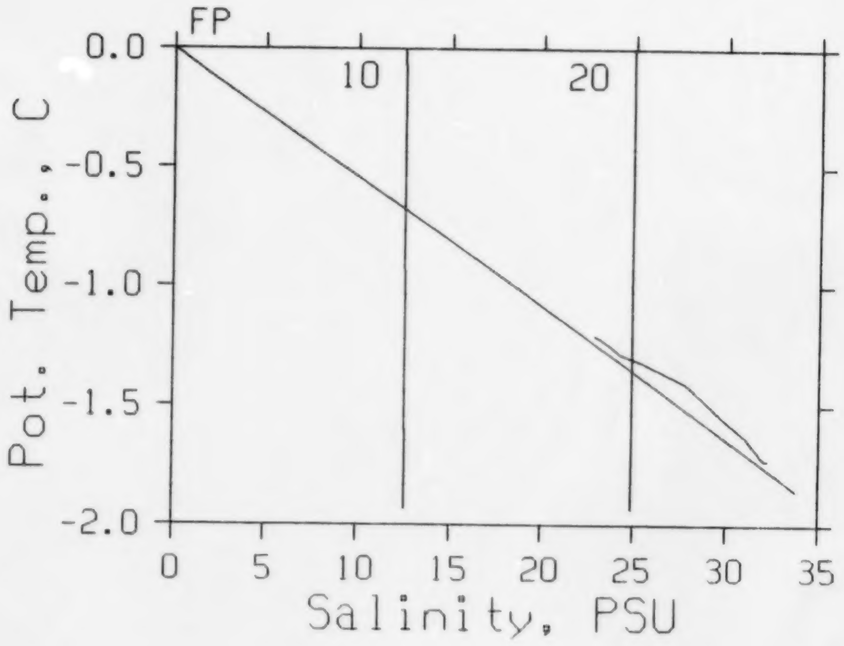




NOGAP ICEWORK 1991
STATION : REV2
REFERENCE NO.: 91-09-046
DATE/TIME : 05/05/91 15:47 MDT
POSITION : 69-56.1N 133-20.4W

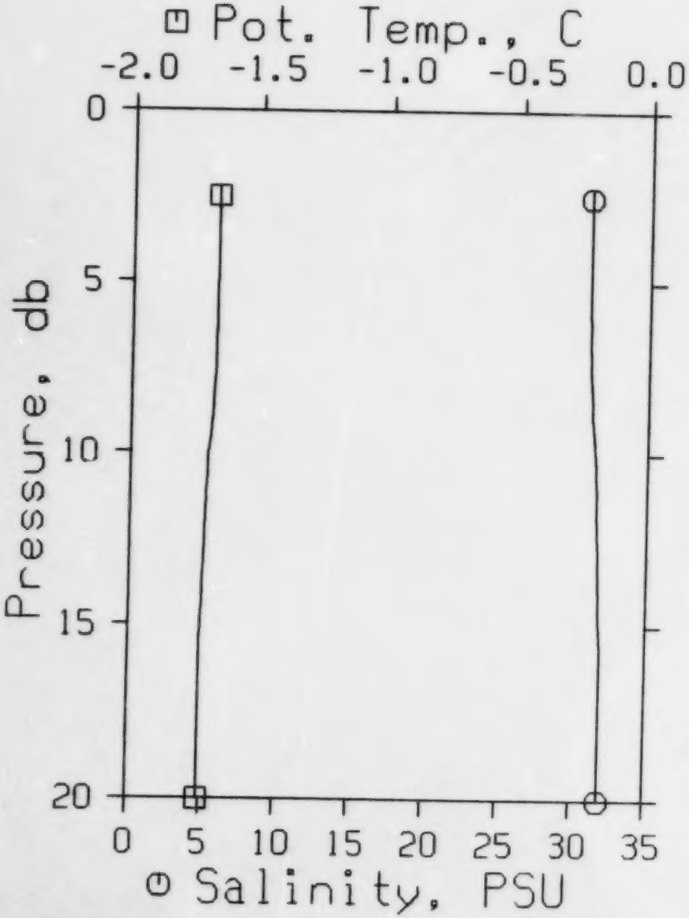
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.205	-1.205	22.821	18.32	937.5	.19	.00	1427
4	4	-1.286	-1.286	24.314	19.53	821.0	.37	.01	1429
4	4	-1.303	-1.303	24.899	20.00	775.5	.39	.01	1429
6	6	-1.629	-1.629	31.038	24.98	298.9	.48	.01	1436
8	8	-1.712	-1.712	31.889	25.68	232.9	.53	.02	1437
10	10	-1.719	-1.719	31.997	25.76	224.6	.58	.02	1437
15	15	-1.724	-1.724	32.082	25.83	218.0	.69	.03	1437
20	20	-1.728	-1.728	32.275	25.99	203.1	.79	.05	1438
21	21	-1.727	-1.727	32.273	25.99	203.3	.81	.06	1438

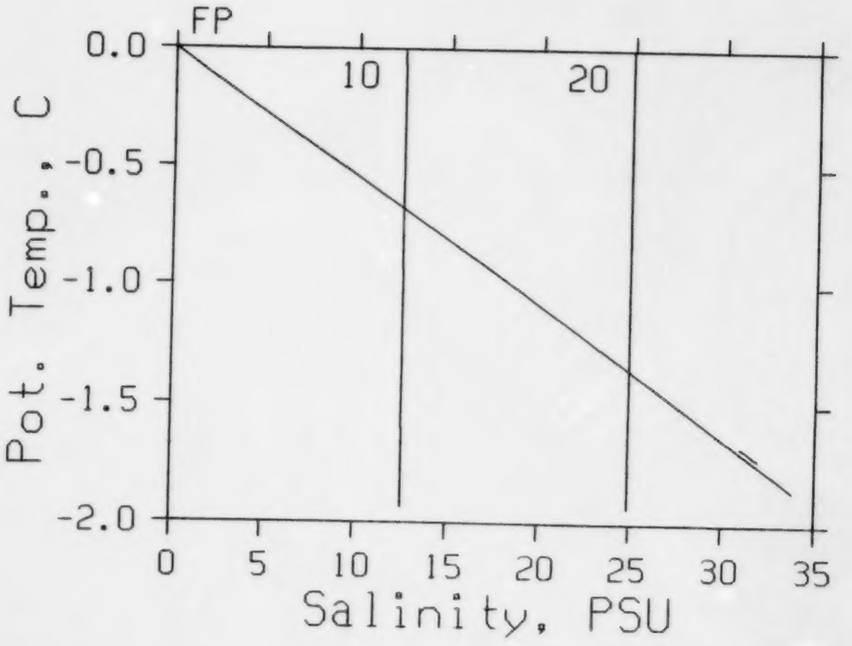




NOGAP ICEWORK 1991
STATION : SL01
REFERENCE NO.: 91-09-005
DATE/TIME : 25/04/91 12:42 MDT
POSITION : 69-53.6N 135-39.2W

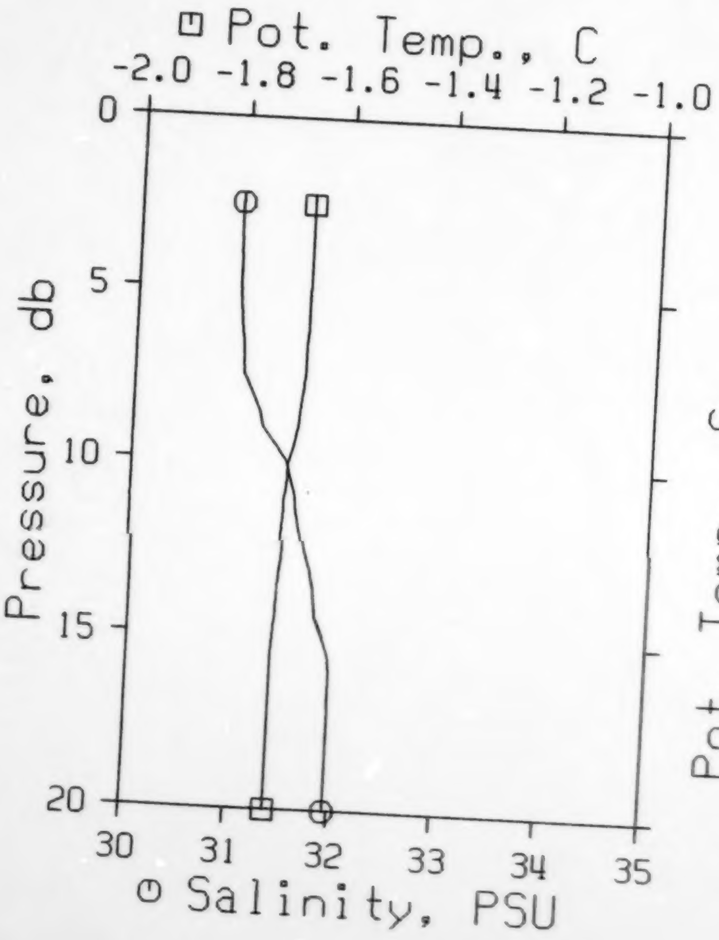
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.671	-1.671	30.967	24.93	304.3	.06	.00	1436
4	4	-1.671	-1.671	30.974	24.93	303.7	.12	.00	1436
6	6	-1.671	-1.671	31.001	24.95	301.6	.18	.01	1436
8	8	-1.677	-1.677	31.127	25.06	291.9	.24	.01	1436
10	10	-1.699	-1.699	31.487	25.35	264.0	.30	.01	1437
15	15	-1.720	-1.720	31.871	25.66	234.3	.42	.03	1437
20	20	-1.723	-1.723	31.957	25.73	227.7	.54	.05	1437

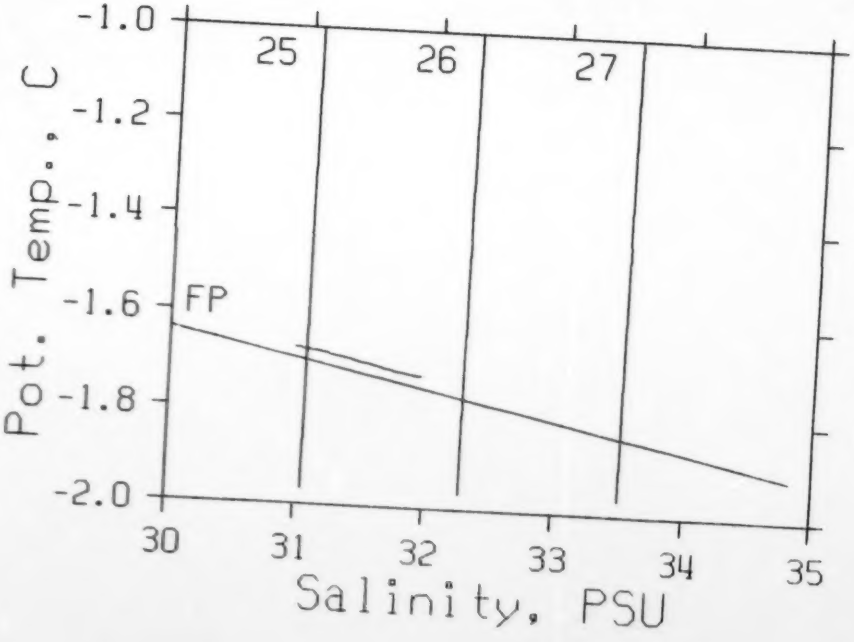




NOGAP ICEWORK 1991
STATION : SL01
REFERENCE NO.: 91-09-005
DATE/TIME : 25/04/91 12:42 MDT
POSITION : 69-53.6N 135-39.2W

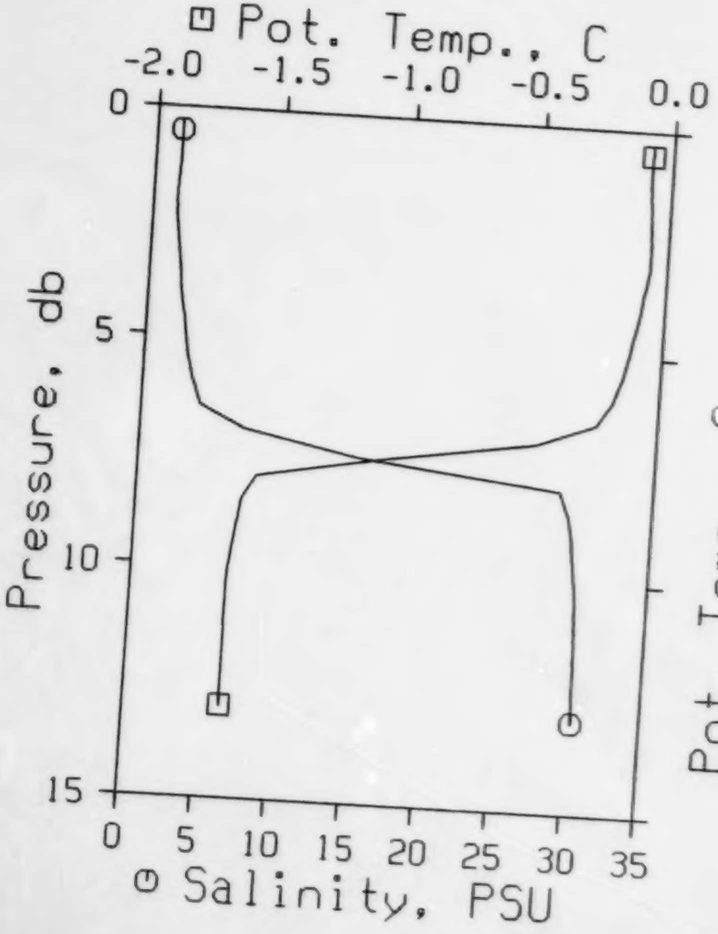
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.671	-1.671	30.967	24.93	304.3	.06	.00	1436
4	4	-1.671	-1.671	30.974	24.93	303.7	.12	.00	1436
6	6	-1.671	-1.671	31.001	24.95	301.6	.18	.01	1436
8	8	-1.677	-1.677	31.127	25.06	291.9	.24	.01	1436
10	10	-1.699	-1.699	31.487	25.35	264.0	.30	.01	1437
15	15	-1.720	-1.720	31.871	25.66	234.3	.42	.03	1437
20	20	-1.723	-1.723	31.957	25.73	227.7	.54	.05	1437

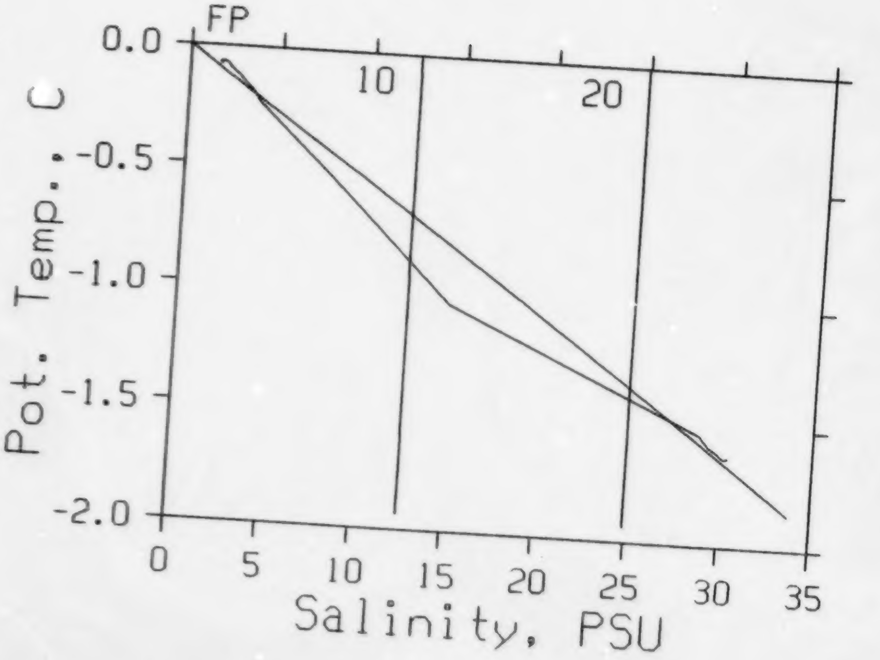




NOGAP ICEWORK 1991
STATION : SL02
REFERENCE NO.: 91-09-006
DATE/TIME : 25/04/91 14:39 MDT
POSITION : 69-47.6N 135-37.8W

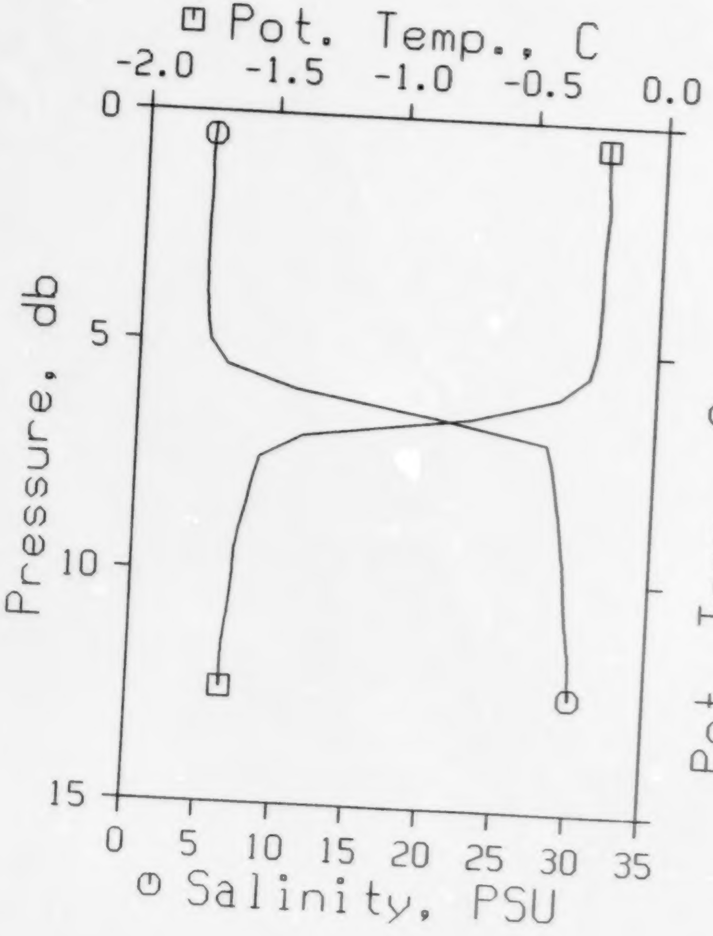
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.070	-.070	1.631	1.20	2616.7	.52	.01	1404
4	4	-.092	-.092	2.253	1.70	2566.3	1.04	.02	1405
6	6	-.178	-.178	3.425	2.65	2471.9	1.54	.05	1406
8	8	-1.399	-1.399	24.892	20.00	777.8	1.91	.07	1429
8	8	-1.532	-1.532	28.690	23.08	480.7	1.93	.07	1434
10	10	-1.624	-1.624	30.038	24.17	376.2	2.01	.08	1435
13	13	-1.624	-1.624	30.378	24.45	349.9	2.12	.09	1435

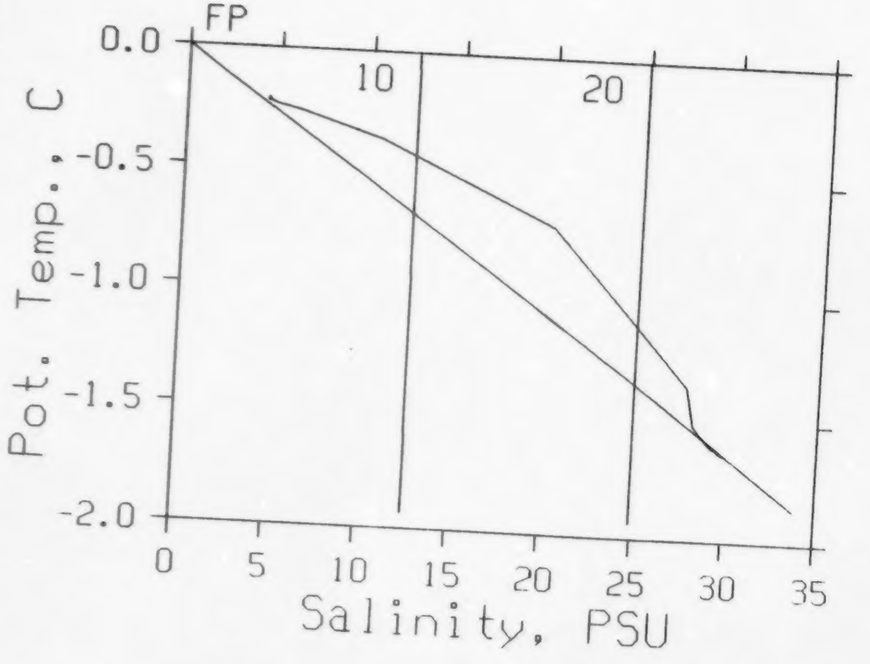




NOGAP ICEWORK 1991
STATION : SL03
REFERENCE NO.: 91-09-007
DATE/TIME : 25/04/91 19:30 MDT
POSITION : 70- .0N 131-28.6W

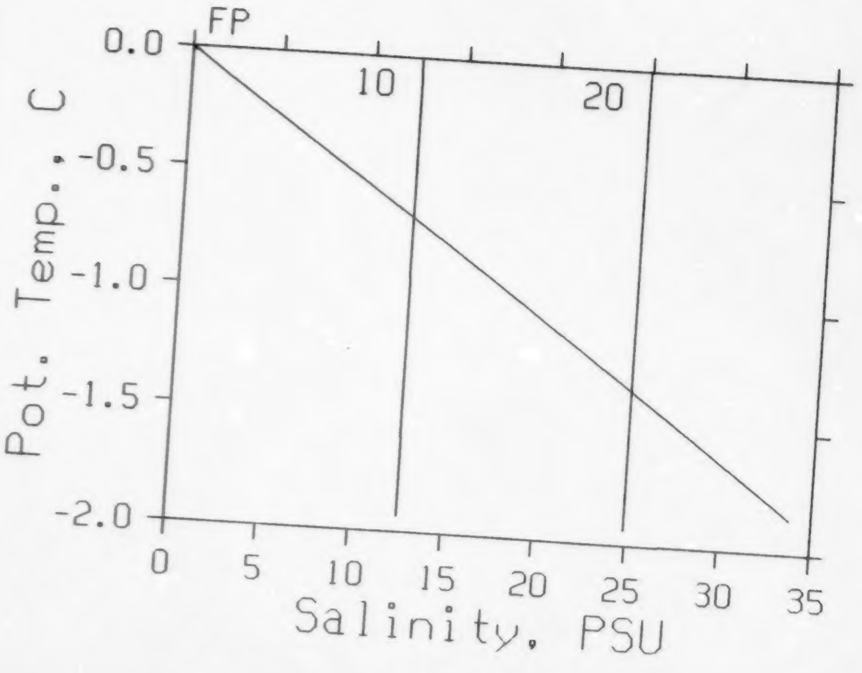
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.210	-.210	4.438	3.47	2390.3	.48	.00	1407
4	4	-.224	-.224	4.437	3.47	2390.5	.96	.02	1407
6	6	-.369	-.369	10.689	8.52	1891.0	1.41	.04	1415
8	8	-1.545	-1.545	28.496	22.92	495.8	1.58	.05	1433
10	10	-1.605	-1.605	29.295	23.57	433.8	1.68	.06	1434
13	12	-1.635	-1.635	29.987	24.13	380.1	1.78	.07	1435





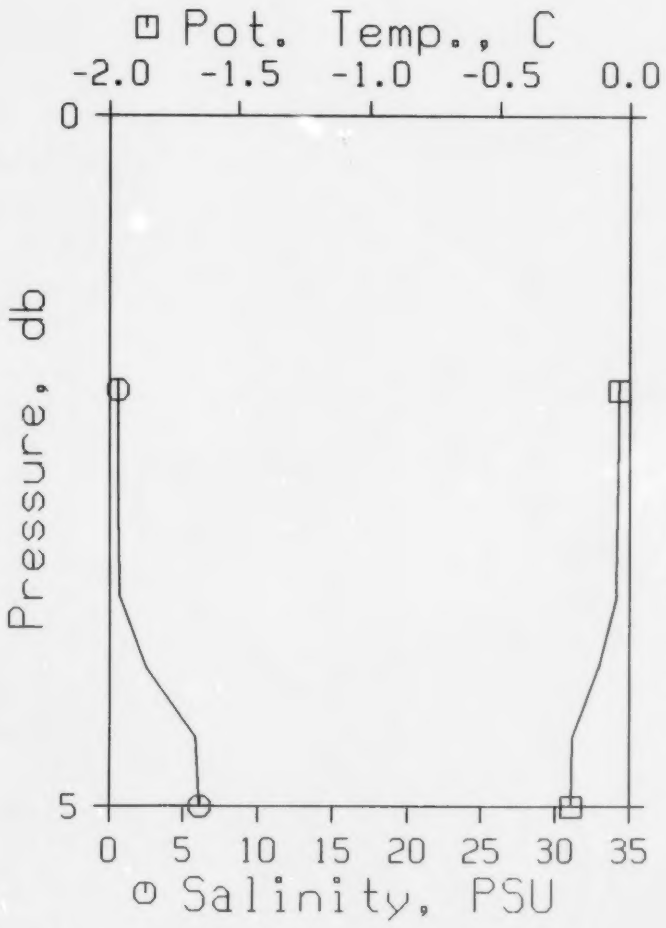
NOGAP ICEWORK 1991
STATION : tkak
REFERENCE NO.: 91-09-014
DATE/TIME : 28/04/91 18:18 MDT
POSITION : 69-31.5N 133- 8.0W

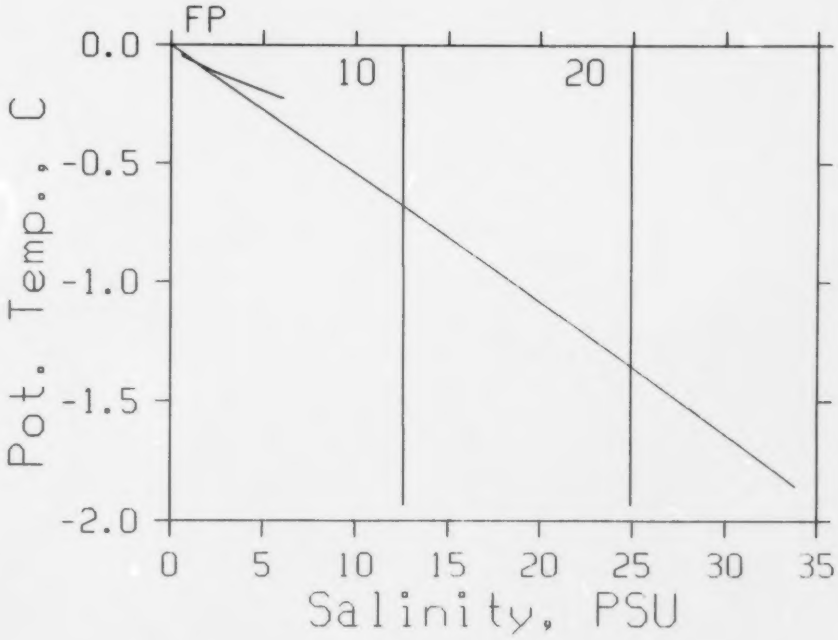
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.017	-.017	.145	-.01	2737.7	.55	.01	1403
4	4	-.017	-.017	.145	-.01	2737.7	1.10	.02	1403



NOGAP ICEWORK 1991
STATION : TPT1
REFERENCE NO.: 91-09-025
DATE/TIME : 29/04/91 14:52 MDT
POSITION : 69-39.3N 132-56.1W

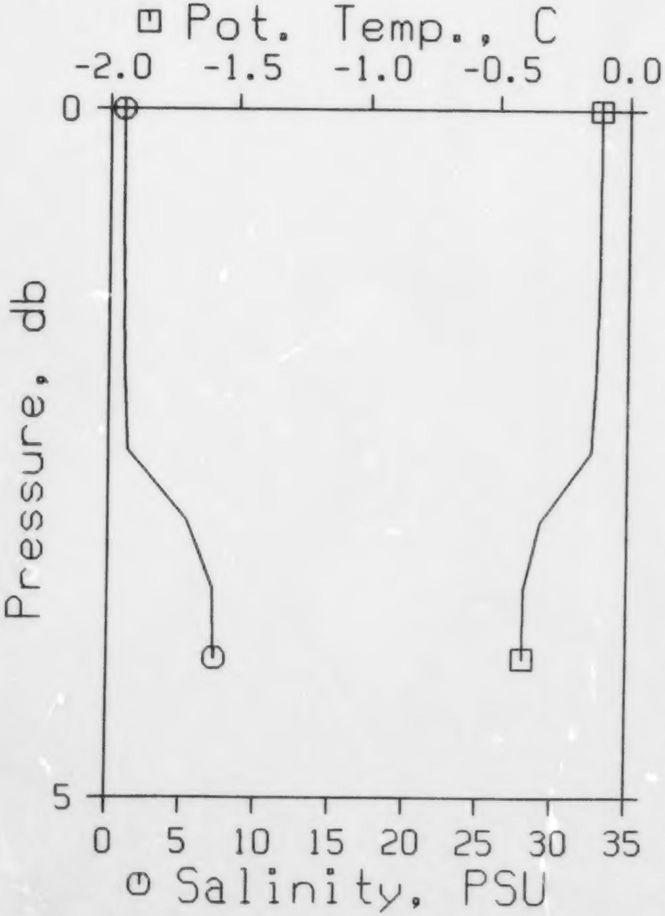
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.039	-.039	.610	.37	2699.8	.54	.01	1403
4	4	-.117	-.117	2.496	1.90	2546.7	1.08	.02	1405
5	5	-.224	-.224	6.125	4.84	2254.7	1.31	.03	1410

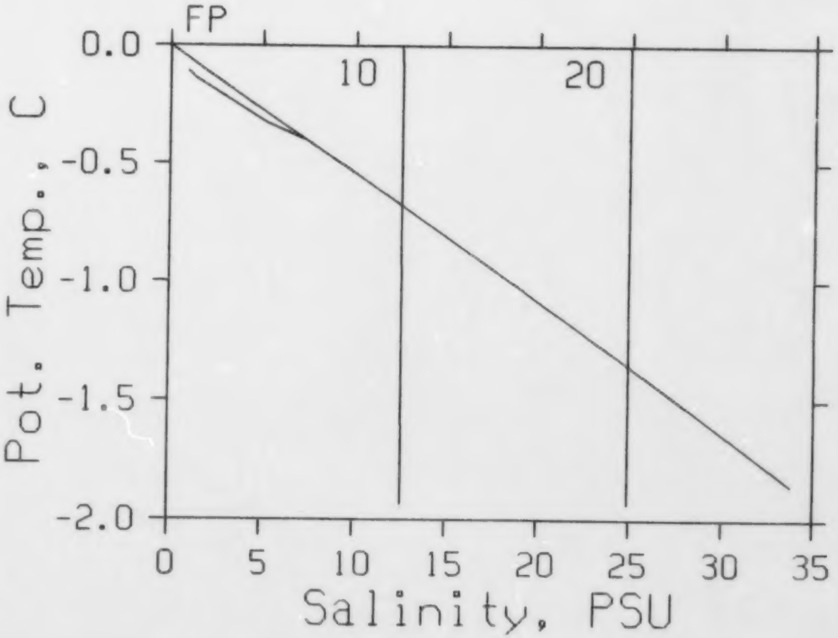




NOGAP ICEWORK 1991
STATION : TPT2
REFERENCE NO.: 91-09-026
DATE/TIME : 29/04/91 16:40 MDT
POSITION : 69-39.7N 132-59.3W

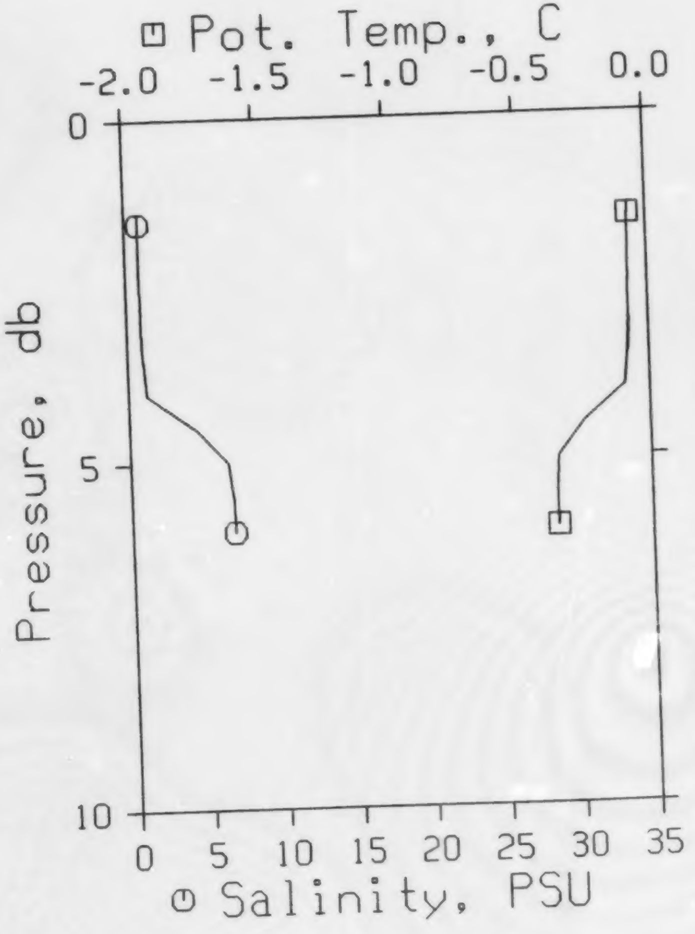
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.121	-.121	1.143	.80	2656.8	.53	.01	1403
4	4	-.397	-.397	7.283	5.77	2162.8	1.01	.02	1410

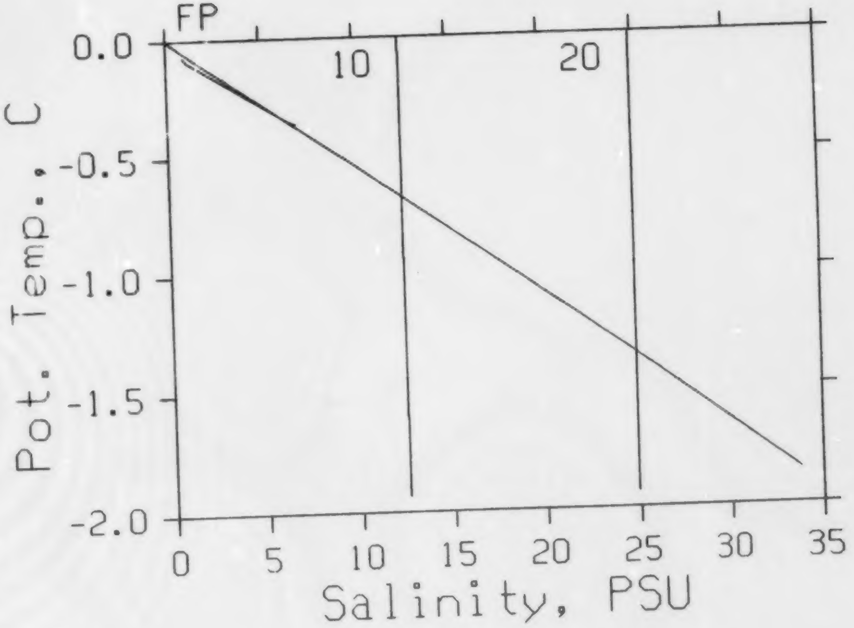




NOGAP ICEWORK 1991
STATION : TPT2
REFERENCE NO.: 91-09-027
DATE/TIME : 29/04/91 16:52 MDT
POSITION : 69-39.7N 132-59.3W

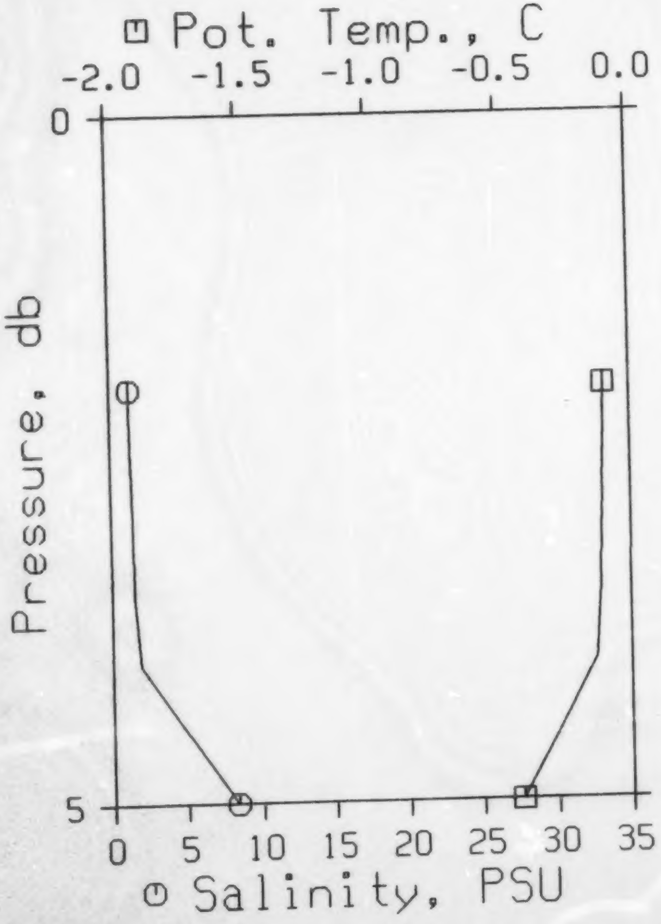
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.070	-.070	.917	.62	2674.9	.54	.01	1403
4	4	-.095	-.095	1.217	.86	2650.6	1.07	.02	1404
6	6	-.362	-.362	6.901	5.46	2193.2	1.53	.05	1410

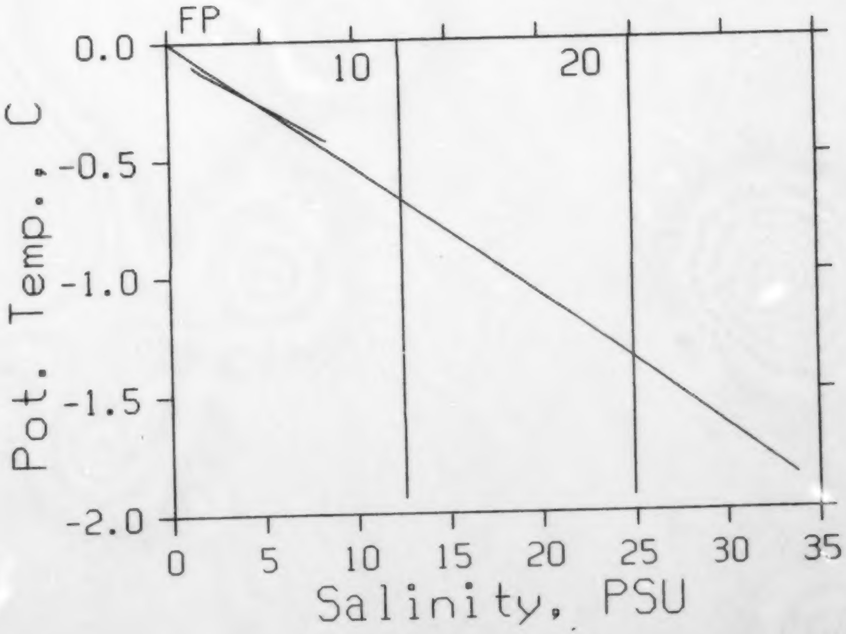




NOGAP ICEWORK 1991
STATION : TPT3
REFERENCE NO.: 91-09-028
DATE/TIME : 29/04/91 18:00 MDT
POSITION : 69-40.2N 133- 1.1W

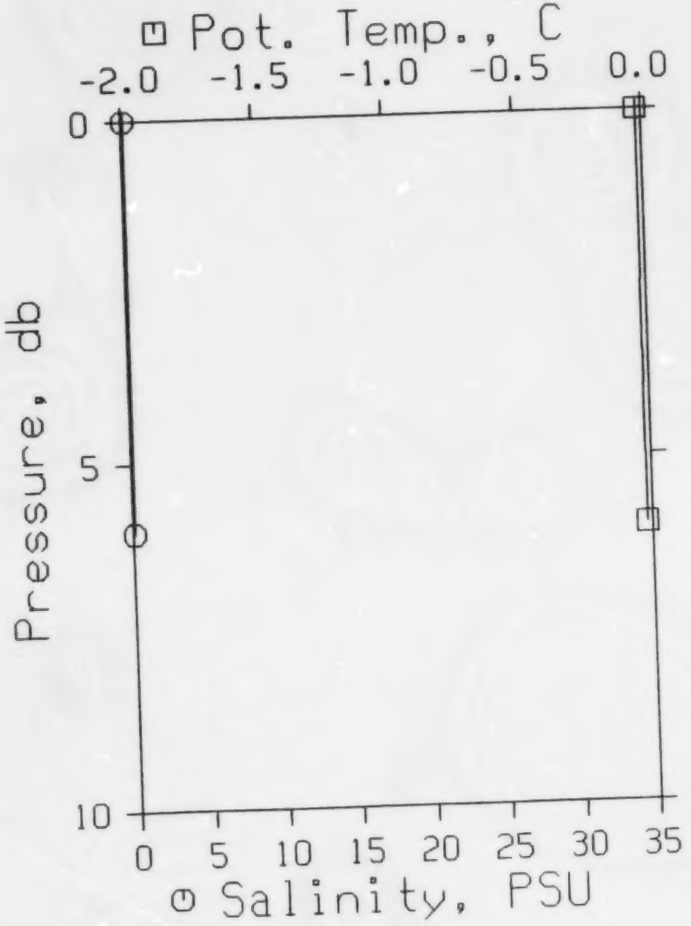
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.098	-.098	1.337	.96	2640.8	.53	.01	1404
4	4	-.134	-.134	1.934	1.44	2592.5	1.05	.02	1404
6	5	-.424	-.424	8.526	6.77	2063.5	1.39	.04	1412

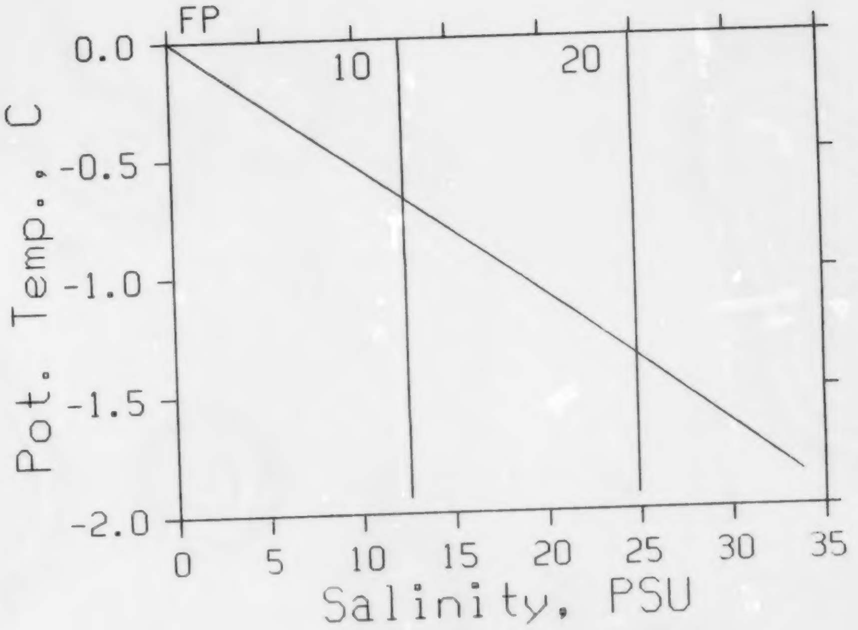




NOGAP ICEWORK 1991
STATION : WSTC
REFERENCE NO.: 91-09-033
DATE/TIME : 30/04/91 17:28 MDT
POSITION : 69-21.4N 133-57.7W

PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.020	-.020	.151	-.01	2737.3	.55	.01	1403
4	4	-.020	-.020	.150	-.01	2737.3	1.09	.02	1403
6	6	-.020	-.020	.150	-.01	2737.3	1.64	.05	1403





6 APPENDIX 2; CHEMICAL DATA TABLES AND PLOTS

STATION : PI–1

DATE : 30/04/91
TIME (Z–6): 1340
LATITUDE : 69 43.84 N
LONGITUDE : 134 31.25 W

ICE THICKNESS (m): 2.02
FREEBOARD (m): 0.13
UNDER–ICE DEPTH (m): 1.98
TOTAL DEPTH (m): 4.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	1.195	494.4	0.09	70.4	9.7		
1.5	1.626	352.6	0.10	69.3	9.6		

STATION : PI-2

DATE : 30/04/91
TIME (Z-6): 1100
LATITUDE : 69 48.75 N
LONGITUDE : 134 38.22 W

ICE THICKNESS (m): 1.90
ICE THICKNESS (m): 0.12
FREEBOARD (m): 5.60
UNDER-ICE DEPTH (m): 7.50
TOTAL DEPTH (m):

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	2.577	416.9	0.03	69.6	9.4		
2	1.373	415.1	0.08	68.9	9.7		
4	11.282	349.8	0.35	55.9	10.0		

STATION :	PI-3	DATE :	29/04/91	ICE THICKNESS (m):	1.93
		TIME (Z-6):	1005	FREEBOARD (m):	0.25
		LATITUDE :	69 55.04 N	UNDER-ICE DEPTH (m):	12.07
		LONGITUDE :	134 47.96 W	TOTAL DEPTH (m):	14.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	5.701	483.2	0.08	67.4	9.0		
2	6.868	479.0	0.14	69.1	9.3		
4	11.621	475.2	0.32	62.7	9.3		
7	30.792	344.9	1.08	23.3	7.8		
10	31.253	348.2	1.14	22.1	7.6		
13.5	31.656	349.4	1.19	21.4	7.2		

STATION : PI–4

DATE : 29/04/91
TIME (Z–6): 1210
LATITUDE : 69 57.92 N
LONGITUDE : 133 58.72 W

ICE THICKNESS (m): 1.90
FREEBOARD (m): 0.20
UNDER–ICE DEPTH (m): 17.40
TOTAL DEPTH (m): 19.30

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	16.751	536.9	0.33	47.0	5.9		
2	17.685	516.9	0.52	48.7	7.8		
4	19.086	490.9	1.08	23.0	7.5		
7	30.810	361.9	1.16	19.1	6.7		
10	31.802	364.2	1.17	18.8	6.5		
15	31.899	362.4					

STATION : PI–5

DATE : 26/04/91
TIME (Z–6): 1156
LATITUDE : 70 2.02 N
LONGITUDE : 135 00.00 W

ICE THICKNESS (m): 2.00
FREEBOARD (m): 0.20
UNDER–ICE DEPTH (m): 27.00
TOTAL DEPTH (m): 29.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	31.871	370.0	1.12	18.5	6.7		
2	31.862	370.4	1.12	18.4	6.9		
4	31.873	369.4	1.12	18.4	6.6		
7	31.889	369.8	1.12	18.2	6.6		
10	31.894	369.2	1.12	18.3	6.6		
15	31.959	369.8	1.15	17.7	6.4		
20	32.174	365.6	1.24	17.9	6.7		
23	32.208	354.6	1.20	18.4	6.7		
25	32.221	362.6	1.21	19.6	7.0		

STATION : L-1

DATE : 30/04/91
TIME (Z-6): 1523
LATITUDE : 69 53.00 N
LONGITUDE : 133 59.98 W

ICE THICKNESS (m): 1.77
FREEBOARD (m): 0.21
UNDER-ICE DEPTH (m): 7.23
TOTAL DEPTH (m): 9.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	4.897	446.0	0.08	67.3	9.3		
2	5.472	448.7	0.08	67.1	9.3		
4	10.710	416.6	0.29	59.2	9.5		
7	29.670	323.8	1.00	27.2	8.9		

STATION : L-2

DATE : 02/05/91
TIME (Z-6): 1953
LATITUDE : 69 54.04 N
LONGITUDE : 132 13.84 W

ICE THICKNESS (m): 1.98
FREEBOARD (m): 0.17
UNDER-ICE DEPTH (m): 9.32
TOTAL DEPTH (m): 11.30

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	4.126	516.5	0.00	70.0	7.6		
2	4.205	491.5	0.00	70.8	8.6		
4	13.929	402.8	0.36	52.9	9.8		
5	29.320	336.3	1.01	27.2	8.8		
7	30.790	338.0	1.13	24.2	8.2		

STATION : L-3

DATE : 07/05/91
TIME (Z-6): 1047
LATITUDE : 70 16.14 N
LONGITUDE : 130 29.65 W

ICE THICKNESS (m): 1.90
FREEBOARD (m): 0.15
UNDER-ICE DEPTH (m): 6.60
TOTAL DEPTH (m): 8.50

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	8.314	428.6	0.17	60.8	9.3		
2	8.381	426.6	0.17	61.9	9.3		
4	30.402	344.9	1.10	26.5	8.1		
6	30.726	332.5	1.16	25.8	8.0		

STATION :	WEST-C		
DATE :	30/04/91	ICE THICKNESS (m):	1.90
TIME (Z-6):	1800	FREEBOARD (m):	0.16
LATITUDE :	69 21.40 N	UNDER-ICE DEPTH (m):	7.30
LONGITUDE :	133 57.67 W	TOTAL DEPTH (m):	9.20

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
2		378.0	0.09	63.5	8.3		

STATION : REV-2

DATE : 05/05/91
TIME (Z-6): 1530
LATITUDE : 69 56 N
LONGITUDE : 133 20 W

ICE THICKNESS (m): 1.70
FREEBOARD (m): 0.13
UNDER-ICE DEPTH (m): 20.40
TOTAL DEPTH (m): 22.10

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	22.156	501.5	0.47	33.4	4.7	0.25	0.55
2	23.494	509.4	0.63	35.5	6.2	0.10	0.34
4	30.075	413.4	1.14	25.2	7.3	0.05	0.17
7	31.814	403.5	1.16	21.3	6.6	0.04	0.13
10	31.908	404.1	1.18	21.4	6.6	0.04	0.14
15	31.973	405.4	1.19	21.2	6.7	0.04	0.12
19	32.133	395.2	1.25	21.2	6.8		

STATION :	CM–1	DATE :	30/04/91
		TIME (Z–6):	1715
		LATITUDE :	69 45.01 N
		LONGITUDE :	133 18.00 W

ICE THICKNESS (m):	1.83
FREEBOARD (m):	0.10
UNDER–ICE DEPTH (m):	6.17
TOTAL DEPTH (m):	8.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	2.829	417.0	0.08	69.1	10.0		
2	3.812	422.6	0.10	70.9	10.5		
4	9.185	425.0	0.30	64.2	9.6		
6	28.676	331.2	0.98	28.9	8.5		

STATION : CM-2

DATE : 28/04/91
TIME (Z-6): 1743
LATITUDE : 69 50.00 N
LONGITUDE : 133 19.99 W

ICE THICKNESS (m): 1.80
FREEBOARD (m): 0.13
UNDER-ICE DEPTH (m): 10.70
TOTAL DEPTH (m): 12.50

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	6.499	475.5	0.10	70.0	9.3		
2	6.621	473.7	0.08	68.0	9.6		
4	9.171	472.7	0.22	65.8	9.7		
7	30.417	343.5	1.06	26.0	8.4		
10	30.616	342.2	1.10	25.3	8.1		

STATION : CM-3

DATE : 28/04/91
TIME (Z-6): 1406
LATITUDE : 69 56.14 N
LONGITUDE : 133 21.61 W

ICE THICKNESS (m): 1.60
FREEBOARD (m): 0.09
UNDER-ICE DEPTH (m): 20.90
TOTAL DEPTH (m): 22.50

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	23.289	470.1	0.61	35.2	6.1		
2	23.931	447.4	0.68	36.0	6.8		
4	31.537	357.8	1.21	21.9	6.8		
7	31.903	354.0	1.19	21.0	6.8		
10	31.953	353.3	1.18	21.1	6.8		
15	32.052	351.1	1.21	21.0	6.8		
20	32.181	350.5	1.24	21.0	6.9		

STATION :	CM–4	DATE :	28/04/91	ICE THICKNESS (m):	2.00
		TIME (Z–6):	0950	FREEBOARD (m):	0.15
		LATITUDE :	70 0.98 N	UNDER–ICE DEPTH (m):	28.00
		LONGITUDE :	133 23.95 W	TOTAL DEPTH (m):	30.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	32.102	354.9	1.16	20.3	6.6		
2	32.089	353.7	1.18	20.1	6.8		
4	32.130	353.4	1.23	20.2	6.8		
7	32.156	353.0	1.21	20.2	6.8		
10	32.165	354.9	1.20	20.2	6.8		
15	32.307	352.6	1.30	20.9	7.0		
20	32.172	356.1	1.19	20.4	6.7		
25	32.222	357.0	1.24	20.6	6.8		

STATION : CM-5

DATE : 26/04/91
TIME (Z-6): 1623
LATITUDE : 70 8.06 N
LONGITUDE : 133 25.23 W

ICE THICKNESS (m): 1.90
FREEBOARD (m): 0.15
UNDER-ICE DEPTH (m): 36.60
TOTAL DEPTH (m): 38.50

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	32.242	351.4	1.29	17.6	6.5		
2	32.239	351.0	1.29	17.6	6.5		
4	32.240	350.7	1.27	17.6	6.5		
7	32.241	349.8	1.31	17.7	6.5		
10	32.241	351.7	1.28	17.7	6.4		
15	32.251	352.1	1.28	17.6	6.3		
20	32.270	355.1	1.29	17.3	6.1		
30	32.312	357.0	1.30	17.1	5.8		
35	32.326	356.1	1.30	17.3	5.9		

STATION : ISZ

DATE 03/05/91
TIME (Z-6): 1530
LATITUDE : 70 11.60 N
LONGITUDE : 133 39.73 W

ICE THICKNESS (m): 0.00
FREEBOARD (m): -
UNDER-ICE DEPTH (m): -
TOTAL DEPTH (m): 43.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	31.954	373.5	1.21	15.0	4.6	0.13	0.13
2	32.015	372.3	1.23	14.9	4.6	0.12	0.13
4	32.019	373.2	1.24	14.8	4.6	0.13	0.13
7	31.994	375.9	1.25	14.9	4.6	0.13	0.13
10	32.089	372.2	1.24	14.9	4.6	0.20	0.18
15	32.092	372.0	1.24	14.7	4.6	0.16	0.15
20	32.104	369.6	1.19	14.2	4.6	0.15	0.15
30	32.158	361.9	1.31	15.2	4.9	0.10	0.12
40	32.298	334.1	1.45	21.2	6.9	0.07	0.15

STATION :	C–6	DATE :	29/04/91	ICE THICKNESS (m):	1.10
		TIME (Z–6):	1445	FREEBOARD (m):	0.10
		LATITUDE :	70 28.29 N	UNDER–ICE DEPTH (m):	59.15
		LONGITUDE :	133 51.47 W	TOTAL DEPTH (m):	60.25

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	31.985	382.9	1.12	12.0	4.0		
2	31.955	379.2	1.15	11.9	4.0		
4	31.954	378.9	1.11	11.9	4.0		
7	[illegible].956	375.5	1.13	12.2	4.1		
10	31.958	375.3	1.13	12.2	4.1		
15	31.965	372.9	1.16	12.6	4.4		
20	31.976	372.3	1.15	12.8	4.4		
30	31.989	369.1	1.17	13.4	4.5		
40	32.117	341.8	1.34	19.5	6.9		

STATION : AP–1

DATE : 07/05/91
TIME (Z–6): 1446
LATITUDE : 69 59.74 N
LONGITUDE : 131 27.96 W

ICE THICKNESS (m): 1.70
FREEBOARD (m): 0.10
UNDER–ICE DEPTH (m): 9.80
TOTAL DEPTH (m): 11.50

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	4.089	437.0	0.11	66.3	9.3		
2	4.054	430.1	0.05	66.3	9.8		
4	4.117	429.7	0.05	66.8	9.5		
7	30.682	336.7	1.12	25.7	8.2		
9	30.799	331.2	1.14	25.6	8.1		

STATION : AP-2

DATE : 07/05/91
TIME (Z-6): 1238
LATITUDE : 70 4.22 N
LONGITUDE : 131 25.19 W

ICE THICKNESS (m): 1.60
FREEBOARD (m): 0.10
UNDER-ICE DEPTH (m): 12.40
TOTAL DEPTH (m): 14.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	8.246	619.9	0.02	52.2	3.9		
2	8.333	546.0	0.00	56.4	5.4		
4	11.651	498.1	0.16	56.1	6.9		
7	31.475	320.7	1.18	25.1	7.5		
10	31.798	338.6	1.24	25.3	7.7		

STATION : AP-3

DATE : 29/04/91
TIME (Z-6): 1859
LATITUDE : 70 8.52 N
LONGITUDE : 131 25.13 W

ICE THICKNESS (m): 1.90
FREEBOARD (m): 0.20
UNDER-ICE DEPTH (m): 17.10
TOTAL DEPTH (m): 19.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	29.787	390.1	0.89	25.1	7.0		
2	29.851	385.7	0.90	25.5	7.3		
4	30.085	373.2	0.95	26.3	7.7		
7	31.806	347.9	1.12	24.6	7.2		
10	32.177	350.0	1.18	23.4	7.3		
15	32.362	346.5	1.24	23.1	7.0		

STATION :	AP–4		
DATE :	29/04/91	ICE THICKNESS (m):	1.90
TIME (Z–6):	1710	FREEBOARD (m):	0.15
LATITUDE :	70 15.45 N	UNDER–ICE DEPTH (m):	21.10
LONGITUDE :	131 28.50 W	TOTAL DEPTH (m):	23.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	32.510	345.4	1.32	19.5	6.2		
2	32.478	344.6	1.34	19.5	6.2		
4	32.480	342.8	1.34	19.2	6.2		
7	32.479	343.1	1.34	19.3	6.2		
10	32.478	342.5	1.34	19.5	6.3		
15	32.480	344.8	1.34	19.3	6.2		
20	32.482	342.6	1.38	19.6	6.3		

STATION : AP-5

DATE : 26/04/91
TIME (Z-6): 2045
LATITUDE : 70 18.03 N
LONGITUDE : 131 21.33 W

ICE THICKNESS (m): 1.50
FREEBOARD (m): 0.15
UNDER-ICE DEPTH (m): 25.00
TOTAL DEPTH (m): 26.50

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	32.383	344.8	1.32	18.2	6.3		
2	32.384	345.5	1.33	18.1	6.2		
4	32.382	345.2	1.32	18.1	6.1		
7	32.387	345.8	1.35	18.1	6.2		
10	32.381	344.5	1.31	18.3	6.2		
15	32.381	344.8	1.34	18.2	6.1		
20	32.382	345.2	1.33	18.2	6.1		

STATION : LB-1

DATE : 05/05/91
TIME (Z-6): 1157
LATITUDE : 70 15.03 N
LONGITUDE : 128 52.4 W

ICE THICKNESS (m): 2.00
FREEBOARD (m): 0.17
UNDER-ICE DEPTH (m): 10.50
TOTAL DEPTH (m): 12.50

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
2	31.424		1.22	27.9	8.9		
9	34.318		1.34	27.9	9.9		

STATION : CB–4

DATE : 06/05/91
TIME (Z–6): 1900
LATITUDE : 70 29.75 N
LONGITUDE : 123 28.40 W

ICE THICKNESS (m): 1.92
FREEBOARD (m): 0.13
UNDER–ICE DEPTH (m): 10.08
TOTAL DEPTH (m): 12.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	33.118	391.5	1.23	26.4	8.7		
4	33.526	391.3	1.22	26.4	9.1		
8	34.608	392.3	1.19	23.8	8.7		

STATION : CB-7b	DATE : 07/05/91	ICE THICKNESS (m):	2.08
	TIME (Z-6): 1330	FREEBOARD (m):	0.20
	LATITUDE : 70 38.88 N	UNDER-ICE DEPTH (m):	14.00
	LONGITUDE : 128 16.21 W	TOTAL DEPTH (m):	16.00

DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	32.508	426.9	1.20	10.5	3.8		
7	33.118	413.4	1.23	14.5	5.3		
13	33.280	413.5	1.22	15.3	5.7		

STATION : MB

DATE : 09/05/91
TIME (Z-6): 1354
LATITUDE : 69 33.18 N
LONGITUDE : 134 04.51 W

ICE THICKNESS (m): 1.95
FREEBOARD (m): 0.10
UNDER-ICE DEPTH (m): 28.65
TOTAL DEPTH (m): 30.60

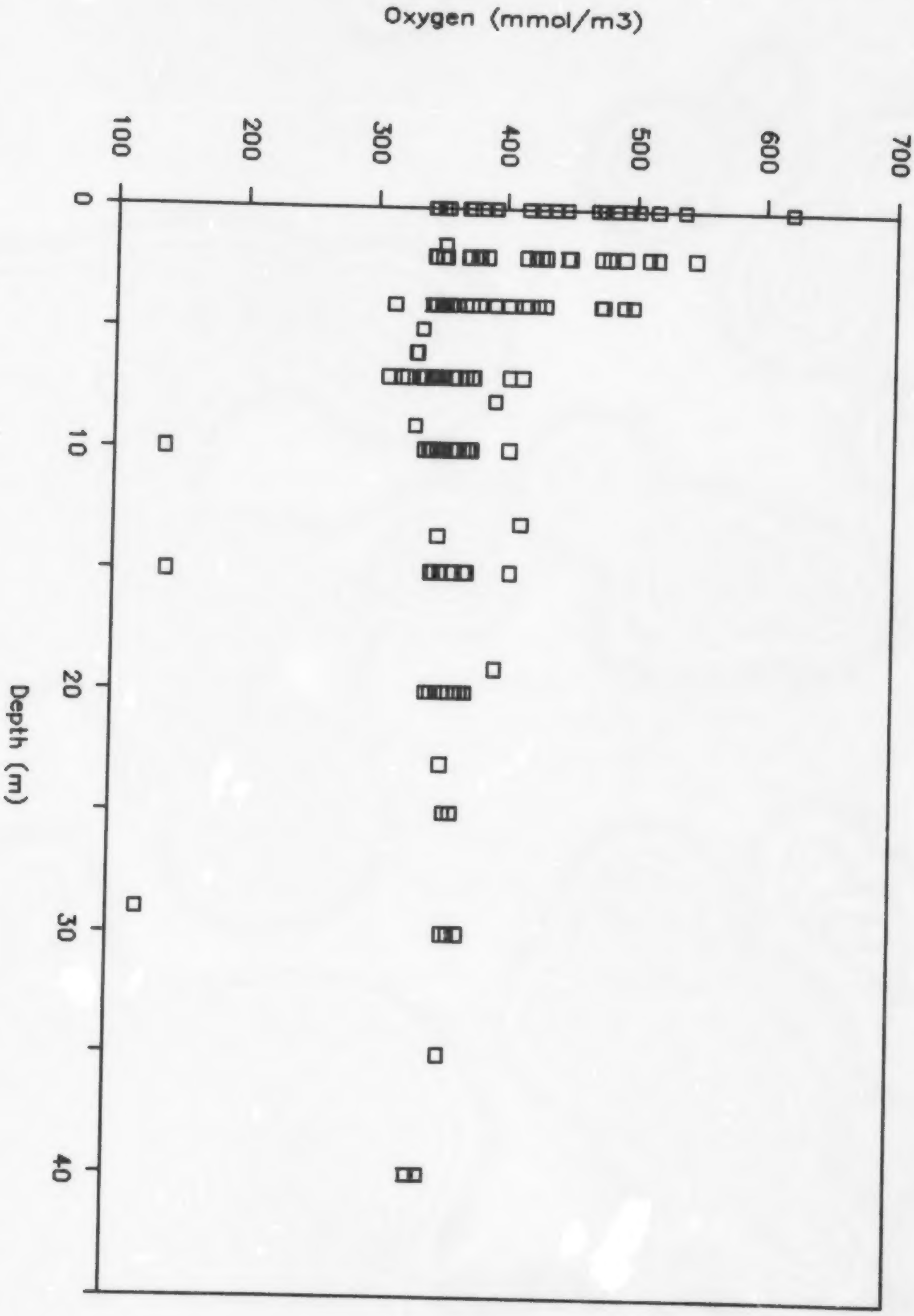
DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
0	3.476	474.1	0.06	110.6	18.0		
4	19.403	314.1	0.29	33.6	8.2		
7	19.910	309.7	0.34	30.6	7.8		
10	21.702	138.3	0.38	33.9	11.4		
15	21.664	141.1	0.37	33.9	11.4		
29	21.730	122.4	0.38	34.6	11.3		

STATION :	CASI-1		
DATE :	29/04/91	ICE THICKNESS (m):	0.00
TIME (Z-6):	1550	FREEBOARD (m):	
LATITUDE :	70 12.84 N	UNDER-ICE DEPTH (m):	
LONGITUDE :	133 28.33 W	TOTAL DEPTH (m):	

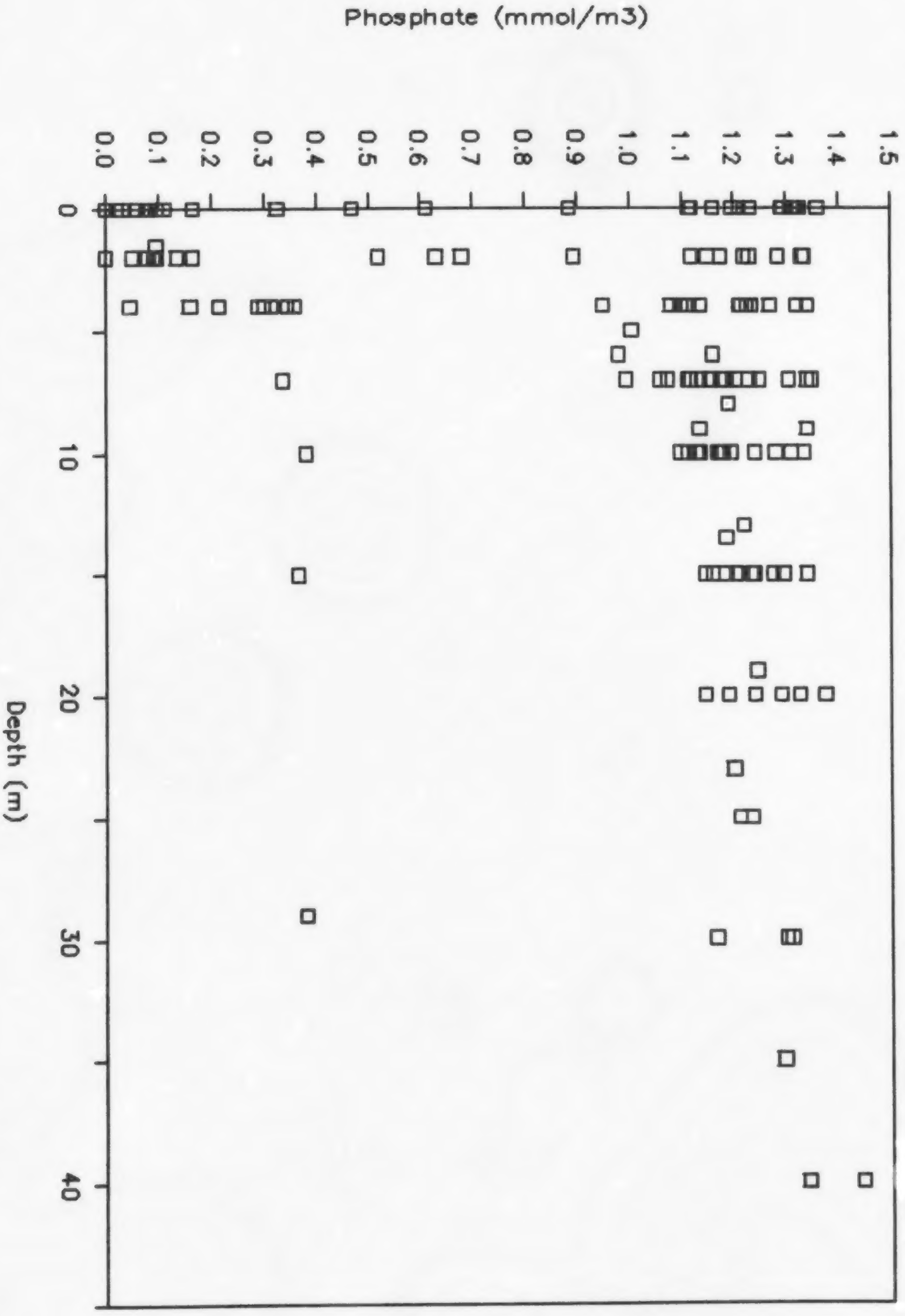
	DEPTH m	SALINITY psu	OXYGEN mmoles/m^3	PHOSPHATE mmoles/m^3	SILICATE mmoles/m^3	NITRATE mmoles/m^3	CHLA mg/m^3	PHAEO mg/m^3
CASI-1	0	32.154	344.8	1.33	17.5	5.4	0.13	0.12
CASI-2	0	32.284	345.5	1.32	18.1	6.1	0.11	0.12
CASI-3	0	32.221	345.2	1.36	16.7	5.2	0.10	0.12
CASI-4	0	32.319	345.8	1.33	19.2	6.7	0.07	0.09
CASI-5	0	32.303	344.5	1.30	18.9	6.2	0.09	0.09
CASI-6	0	32.278	344.8	1.31	19.0	6.1	0.07	0.08
CASI-7	0	32.170	345.2	1.30	17.6	5.3	0.14	0.16

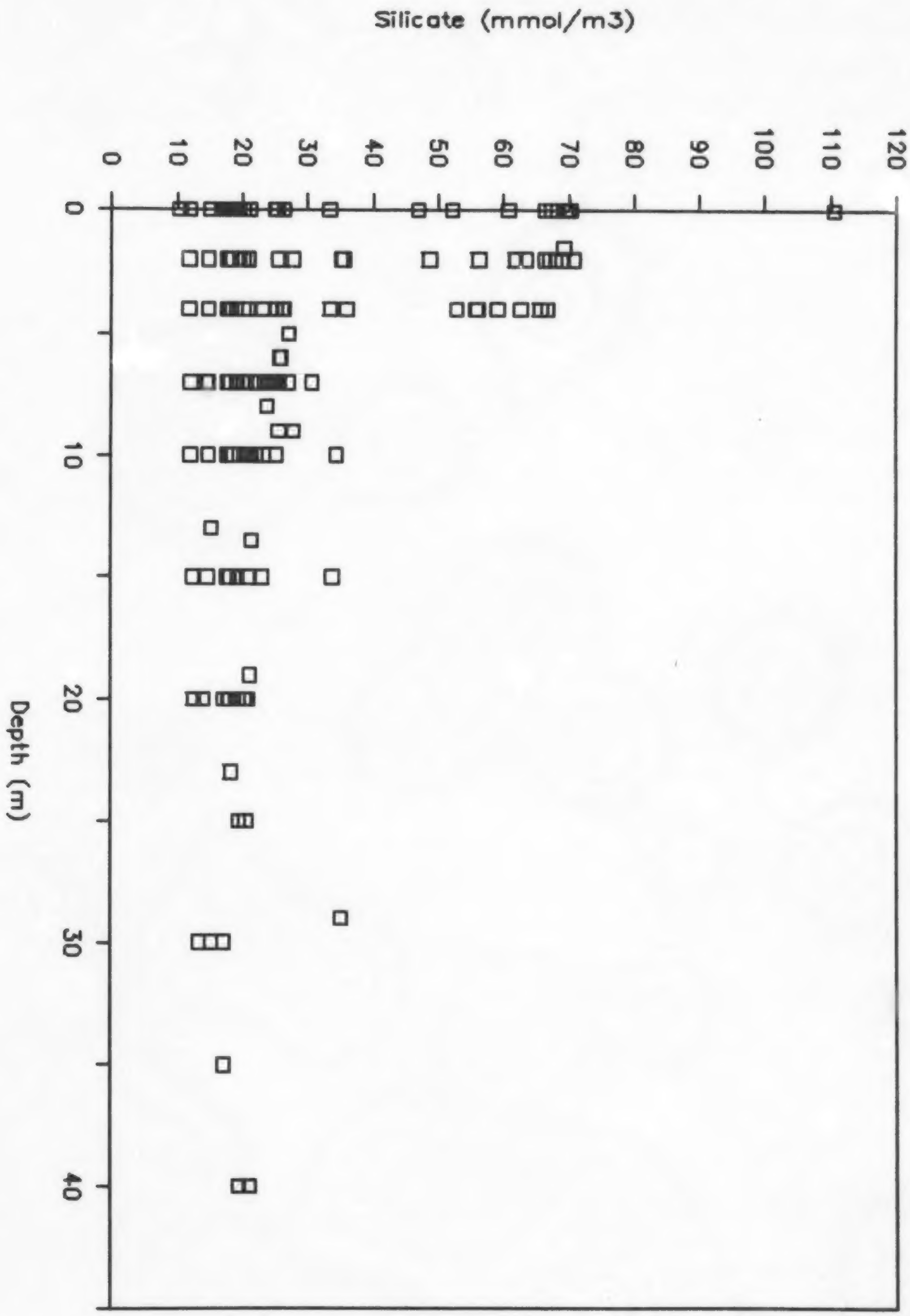
Locations are:

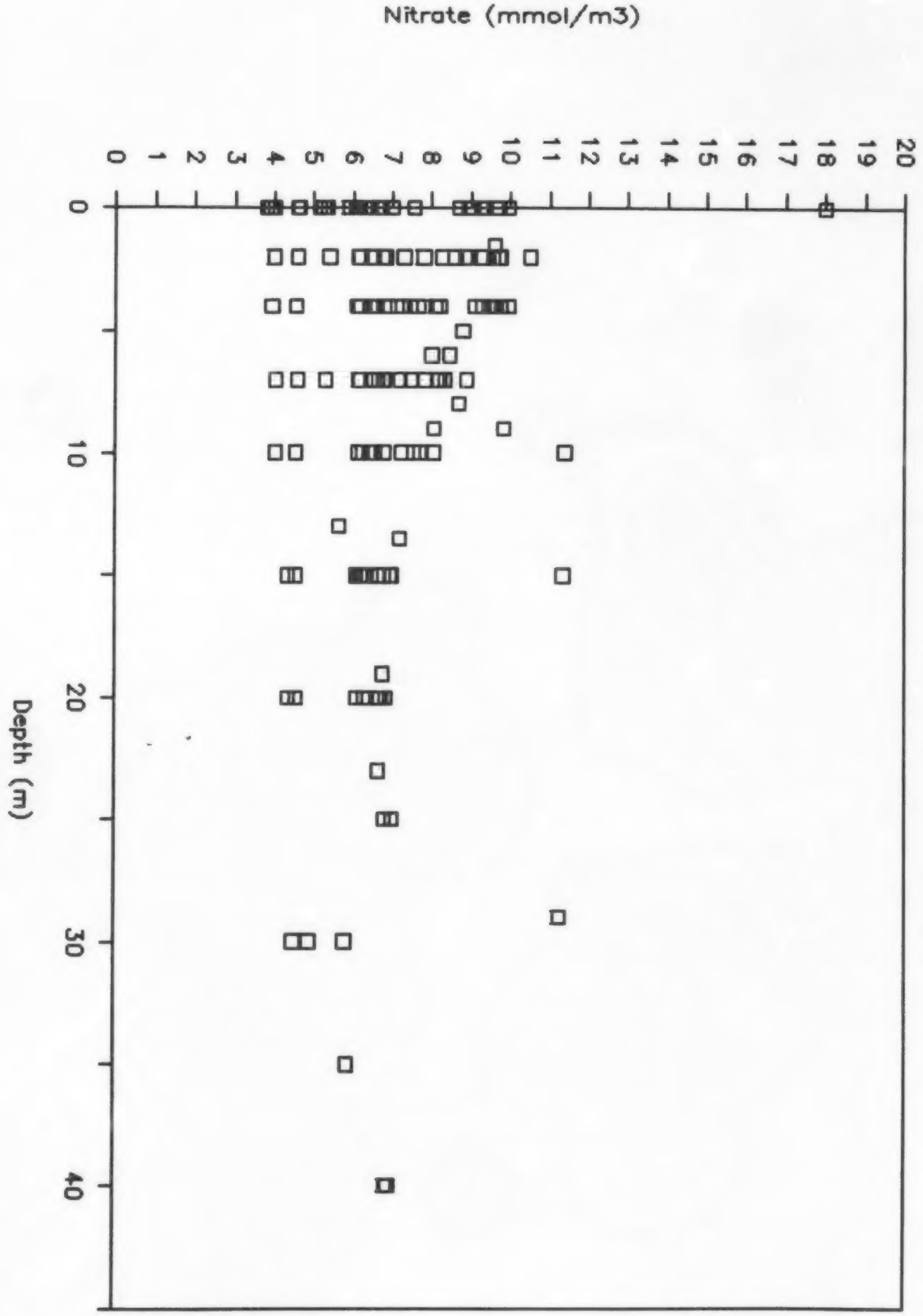
	LATITUDE	LONGITUDE
CASI-2	70 10.35 N	133 54.95 W
CASI-3	70 10.36 N	133 53.34 W
CASI-4	70 09.25 N	134 01.58 W
CASI-5	70 09.25 N	134 01.58 W
CASI-6	70 07.88 N	134 14.71 W
CASI-7	70 12.80 N	133 28.34 W

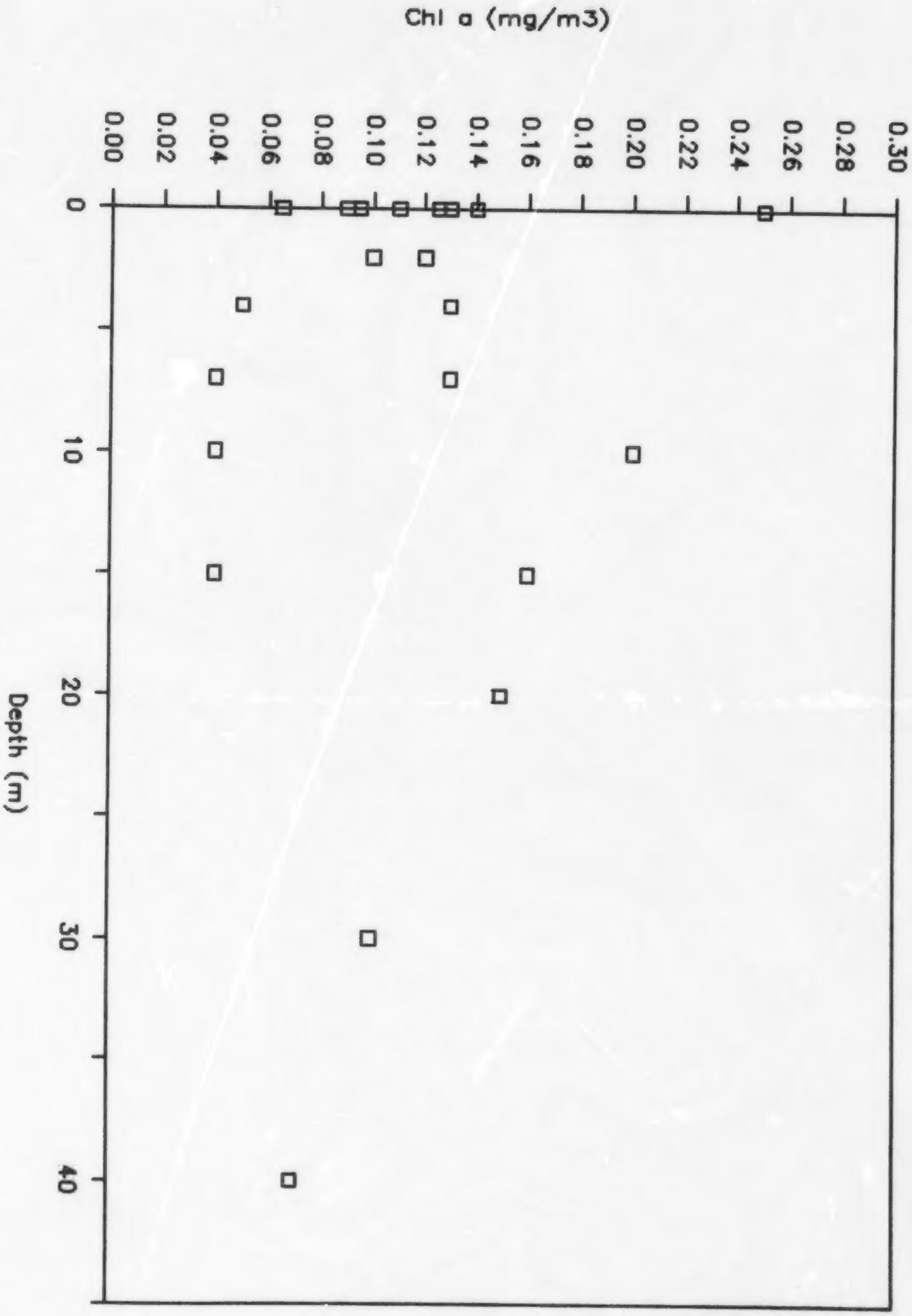


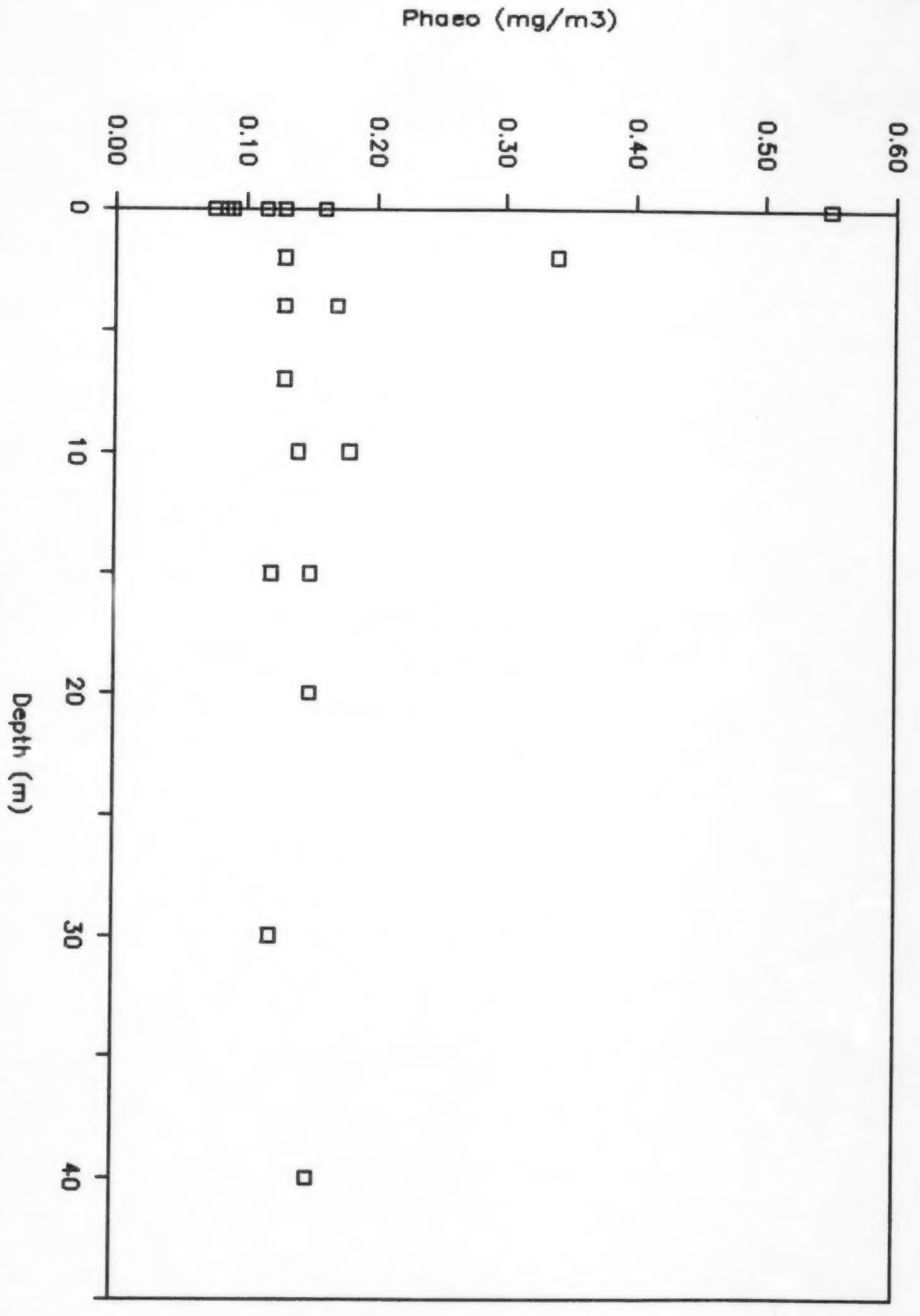
Oxygen (mmol/m3)
100
200
300
400
500
600
700
0
10
20
30
40
Depth (m)


Phosphate (mmol/m3)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
0
10
20
30
40
Depth (m)


Silicate (mmol/m3)
0 10 20 30 40 50 60 70 80 90 100 110 120
Depth (m)
0 10 20 30 40


Nitrate (mmol/m3)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Depth (m)
0 10 20 30 40


Chl a (mg/m3)
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.18
0.20
0.22
0.24
0.26
0.28
0.30
0
10
20
30
40
Depth (m)



Phaeo (mg/m3)
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0
10
20
30
40
Depth (m)

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